Three Lectures
ON
THE PRACTICAL POINTS IN THE TREATMENT OF THREATENED ASPHYXIA.

Delivered at the Medical Graduates' College and Polyclinic, Chenies-street, W.C.,

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LECTURE III.[1]

GENTLEMEN,—Having now dealt with the subject of drowning sufficiently, I hope, to make it clear and practical, I will continue with a subject very closely allied to that which we have been considering—namely, stertor and the management of the apoplectic and comatose conditions. Stertor was known to the ancients, and Horace, in one of his Satires, says of a drunken bargee, "*stertitque supinus*," so that it had been recognised, in days long ago, that stertor had some relationship with the supine position of the body. Stertor is the term applied to sounds in the throat, mouth, or any part of the air-passages produced by the movements of the air during respiration and occurring in the apoplectic and like conditions. Several varieties may be recognised: (1) nasal, arising from approximation of the alæ nasi towards the septum by the in-going air, as in the act of sniffing; (2) buccal, due to vibrations of the lips and puffings and flappings of the cheeks during inspiration or expiration; (3) palatine, arising from vibrations of the soft palate, whether the breath passes through the mouth or the nose; (4) pharyngeal, caused by the lolling back of the base of the tongue into near contact with the posterior wall of the pharynx; (5) laryngeal: this variety is referrable to vibrations of the chordæ vocales, as in croup and whooping-cough; and (6) mucous: mucous stertor is a term which may be given to the bubbling of air through mucus or fluids in the trachea or larger air-tubes.

All sounds of an abnormal character having their origin in the larynx, trachea, or bronchi at once give rise in the professional mind to a sense of impending danger. It is felt that the life of the patient is in jeopardy from sudden or more commonly gradual progressive suffocation, ending in death. It is known that some physical changes, intrinsic or extrinsic, have arisen which have narrowed or diminished the lumen of the chief air-ways, and the causes of those physical changes are anxiously and carefully sought for, and, if possible, promptly removed. The subsidence of abnormal sounds implies to the anxious physician the absence of at least immediate danger. This danger has not, until quite recently, been so much felt with abnormal sounds having their origin in the nasal, oral, and pharyngeal cavities. In those localities, it is true, they have been observed and noted, and then passed by as of trivial or secondary importance—as having, in fact, no serious bearing on the life or well-being of the patient; but in these portions of the air-ways, as in those lower down, abnormal sound *does* imply danger, not immediate perhaps, or difficult to combat—but that it is a danger, and that it requires all the intelligent care and skill of the physician, will, I think, on reflection, be readily conceded.

Noise, then, in any part of the air-way is a danger signal; its importance the physician must determine. The stertor of the apoplectic state may prove equal in danger to the crowing of the croupy child or the stridor arising from the pressure of a thoracic tumour. Stertor is therefore a symptom with two meanings: the noise expresses the mechanical interference and the mechanical interference is an accidental concomitant of the unconsciousness. The accident which determines whether "the stroke" be or be not accompanied by stertor is in most cases due to the accident of the patient's happening or not happening to be upon his back; or should he exhibit stertor while upon his side there must be some derangement of the ordinary relations of the pharynx, such as the chin being too near the sternum, the existence of a local œdema, long uvula, large tonsils, mucus in the air-tubes, pressure from without, or, indeed, anything which narrows the respiratory channels or vibrates in their course.

The German physicians Strümpell, Nothnagel, and others, and the modern French physicians, are, like us, in general agreement as to the symptoms and causes of the apoplectic state, and the same may be said of its treatment. Practically, Dr. Strümpell's entire treatment of the apoplectic attack is directed to the relief of arterial tension, and this tension is believed to have some relation with the deep, noisy, stertorous breathing; but what that relation is is left to the imagination. It is clear, however, that the means suggested (bleeding) for the relief of the arterial tension is not looked upon as really trustworthy; the writer shows that he has no abiding faith in the means which he advises. They are suggestions only; he evidently is not fully satisfied of their end and object. I hope to be able to satisfy you that the arterial tension has no direct causal relation with the cerebral hæmorrhage; on the contrary, it is shown to be entirely indirect, and a consequence simply of an easily removeable cause, suffocation, indicated by the stertorous breathing, which, when relieved, so entirely changes the symptoms that the question of bleeding or other depleting remedies cannot even be entertained. I have never failed, during long experience, to relieve arterial tension in these cases by removing the obstructions which cause the stertor, and by so doing I have at the same time found the nature of the attack to be made more clear and the management of it more simple and effective.

The first effect of a cerebral hæmorrhage is shock, which produces a tendency to syncope; and this state is only changed by the supervention of stertorous, i.e., difficult and suffocative, breathing, when the flushed and turgid countenance, pulsating carotids, and strong bounding pulse at once indicate some powerful reaction. The heart is labouring to overcome some serious obstruction, and it is now obvious enough, from the distension of the systemic capillaries, that such obstruction can only exist in the pulmonary circulation. Nothnagel says, under the head of "Treatment of Apoplexy": "Against the lesion itself nothing is of any avail. The vessel once ruptured the hæmorrhage necessarily follows without our being able to arrest its progress. The treatment, then, ought from the commencement to be exclusively directed against functional troubles, and above all against paralysis of the encephalon. Every effort of the physician should aim at arousing the excitability of the nerve-tissue. Bleeding constitutes—when the general state of the patient permits of it—the most efficacious means. It diminishes the intracranial pressure, arouses circulation in the encephalon, and combats the hyperæmia which sometimes complicates hæmorrhage and tends to maintain the neurolysis. But if blood-letting is of real service in certain cases, it is in others strongly contra-indicated, and it cannot therefore be practised indifferently in all cases of apoplexy without danger." Jaccoud and Hallopeau say: "In the treatment of apoplexy, it is necessary above all to be guided by the general condition. When the patient is young, robust, the pulse full and bounding, the cardiac impulse powerful, then *la saignée générale* is strongly indicated. Bleeding from the arm is to be preferred. The vein should be opened boldly, so as to obtain a rapid depletion of the circulation. The relief is in certain cases almost immediate, and patients are even seen to regain consciousness during the operation."

The conditions allied to the apoplectic state—i.e., those in which from any cause the mind and will are in abeyance and the body is left in that state of physical helplessness in which the functions necessary to the maintenance of life become endangered by forces acting from within and from without—I will briefly touch upon under their respective headings, such as concussion and fracture of the skull, drowning, hæmoptysis, chloroform-poisoning, convulsions, epilepsy, bronchitis, and so on. Each condition I propose to illustrate by typical cases, in order to demonstrate to you the varied applications of the principles contended for.

Quite early in my investigations I entertained the conviction that by separating the suffocative symptoms from the shock of apoplexy we should so simplify the case as to enable us to mark the position and probable extent of the cerebral mischief. As I have watched the progressive steps in the localisation of brain-functions I have become more and more convinced of the practical value of removing the

[1] Lectures I. and II. were published in THE LANCET of June 22nd p. 1743) and 29th (p. 1814), 1901, respectively.

mystifying symptoms of suffocative stertor as an essential element of diagnosis and prognosis, quite independently of the frequent and valuable aid afforded in the final recovery of the stricken and suffering patient. It may be asked whether in any case bleeding is justifiable in apoplexy. A wider knowledge of pathology has taught us that the short-necked, fresh-coloured, plethoric-looking man is not the individual most liable to "a stroke." It is probable that the ordinary appearance of a man in the apoplectic state, with the presence of stertor and suffocative symptoms, and therefore with a congested and turgid countenance, may have led to the error of labeling the plethoric-looking man with the prefix "apoplectic." Of course, such a man may have a stroke, and it is possible that under certain conditions blood-letting may become a question of treatment in the case; but my experience teaches me that even in such constitutions, if no stertor exists and there are no impediments to the free entrance of air into the lungs, the propriety of "letting blood" has never appeared to be necessary or justifiable; the stroke has, through "shock," acted sufficiently as a sedative and removed all traces of bounding pulse and arterial tension. It is conceivable that the circulatory centre may in some cases be fretted by poisoned or disordered blood and that arterial excitability and tension may result from excitability of nerve-tissue, even without obstruction in the air-way; if so, of course blood-letting may be useful and permissible; but in apoplexy I have never seen such a necessity when all respiratory difficulties have been removed.

CASE 1.—In November, 1857, I was called to see an old lady who had been attacked with sudden sickness whilst talking to some friends; faintness followed, with an inability to express herself, though she was to a considerable extent conscious. She was put to bed and kept quiet; mustard poultices were applied to the epigastrium and to the nape of the neck and hot bottles to the feet. In an hour or two reaction commenced, and *pari passu* coma and stertorous breathing set in, which steadily increased in intensity until my second visit, when this condition had lasted about three hours. Her pulse was now full and excited, but as she was 73 years of age, and had already suffered from two or three attacks of paralysis, no severe measures were adopted. The skin was hot and covered with a profuse perspiration, the face was swollen and livid, and the mouth was half open, the pupils were contracted and insensible to light, and the eyeball was insensible to touch. The stertor was very deep and the breathing was laboured. Whilst I was at the bedside of my patient she was very nearly suffocated from the stomach ejecting a portion of its contents into the throat. I at once turned her on to her side and emptied her mouth, and she then breathed not only freely but without the slightest stertor. I was somewhat surprised, but proceeded to place her in what appeared to be the most comfortable position—on her back; her respiration instantly ceased and she convulsively struggled for breath. Supposing it to be the tongue which had choked her I thrust my finger into the mouth, and hooked it forward from the base, when the breathing again became easy and free from stertor. The patient was now laid comfortably on her side; and until her death, which took place two days afterwards, the stertor never recurred when she was in that position, but the respiration continued as naturally as if she slept. To convince myself that this was due to position I several times turned her on to her back for a few moments and invariably, when I did so, the stertor was as marked as ever. The lateral position had another advantage, for it allowed the saliva and mucus to drain away instead of remaining in the bronchial tubes and giving rise to "mucous stertor," and thus offering another impediment to the respiration. Other changes occurred coincidently with the change of position. The pulse became calmer, the skin cooler and less bedewed with moisture, the eye sensible to touch, and general sensation returned to such an extent that the patient evinced signs of discomfort at the removal of a mustard poultice. Nevertheless, whenever the supine position was adopted, the stertor, difficulty of breathing, lividity of face, and other unfavourable symptoms returned in full force. It was easy to observe that as the position was changed to the back the paralysed tongue gravitated downwards and backwards.

This case suggests many important points for consideration:—1. That the paralysed tongue may, under certain circumstances, cause even death by suffocation; for I believe that this patient would have died if I had not been present when the tongue fell so suddenly back and when the fluid was ejected from the stomach into the throat. 2. That stertor arises from the tongue falling back in the supine position of the body, thus offering a serious impediment to the respiration, since it required greater muscular force to breathe with stertor than when the respiration was noiseless. 3. That the saliva and mucus (other respiratory impediments) drained away when the patient was on her side. 4. That great improvement of the general symptoms occurred upon the establishment of easy breathing in the lateral position—pulse, skin, and sensation all undergoing material alterations for the better.

CASE 2.—A man, aged 65 years, became comatose from exhaustion supervening upon extensive subacute inflammation of emphysematous lungs. When I entered the room he was lying on his back with his mouth open, breathing stertorously, though not to a great extent. On looking into the mouth the soft palate appeared remarkably small and shrivelled, so that it did not come very decidedly into contact with the tongue, even though partially paralysed. Whilst I was standing at the bedside my patient suddenly ceased to breathe, became very livid in the face, struggled convulsively, and then became rigid. My recollection of the first case induced me to turn this patient on to his side, when he instantly recovered with a long groan and then breathed quite naturally. He was turned on to his back again; stertor returned and he became choked from a quantity of bronchial secretion. The lateral position was resumed, the mucus and saliva drained away, and he now breathed quite easily until his death which took place about half an hour afterwards.

CASE 3.—This was a severe epileptic attack with stertor which disappeared at once in the lateral position and the patient recovered. In this case, too, as in Case 1, the skin and pulse altered in character as the stertor ceased. It is in such a case that "position" can be a curative as well as a palliative measure. Here was a delicate man, subject to epilepsy and disease of the mitral valves. Supposing the breathing to have gone on with great labour and the lungs to have become more and more congested, and consequently the brain and heart also, one or other or both of these vital organs might have suffered and death ensued.

It is well known that the cavity of the pharynx, having only a fixed boundary posteriorly, may have its capacity materially affected by the ever-varying position of the sides, of the soft palate, the tongue, and the larynx. The larynx and sides of the pharynx have, I believe, but little connexion with the cause of stertor; I shall therefore not further refer to them. The tongue, being attached to the lower jaw by its mucous membrane and its muscles, has its relations with surrounding parts altered as the mouth is opened or closed. When the mouth is closed the horizontal portion or body of the jaw forms nearly a right angle with the spinal column, from which the symphysis is then at its greatest distance. When the mouth is opened by the dropping of the jaw the symphysis describes the arc of a circle and approaches more nearly to the spine, where the posterior wall of the pharynx is attached. The tongue, having its chief attachment to the symphysis, would consequently be drawn away from the pharynx in the former case and allowed to rest in contact with it in the latter. This, if not true in every case, is at least true in some. A dissection was made with great care, so as not to displace the parts more than was necessary to give a fair view of the base of the tongue and the epiglottis. When the mouth was open and the subject on its back the road to the larynx was completely obstructed, in consequence of the tongue resting in contact with the back of the pharynx; but the obstruction could be removed by hooking the tongue upward and forward from its base. When the mouth was closed the tongue was lifted from the pharynx, leaving ample breathing space. But even with the closed mouth, if the chin were much bent on the sternum the base of the tongue was almost in contact with the back of the pharynx. It would seem from this dissection that the muscles of the tongue attaching it to the symphysis of the jaw are ordinarily too short to admit of the base of the tongue reaching the back of the throat when the mouth is closed and the head is thrown back. The purpose served by such an arrangement would appear to be to keep the base of the tongue away from the back of the throat during deglutition. In the act of deglutition the mouth is firmly closed, and the genio-hyoid and genio-hyo-glossi muscles, taking their fixed point from the now immovable symphysis, draw the body of the tongue upwards and forwards, allowing sufficient room for the morsel of food to travel easily through the cavity of the pharynx.

Were these muscles of greater length the base of the tongue might become a source of inconvenience if not of danger. The dissection, besides demonstrating the respective positions of the tongue with the open and the closed mouth, suggests the necessity of caution being used in raising the head with pillows; for if the head be too much bent forward on the chest the tongue may lie in dangerous proximity to the pharynx, even when the mouth is closed.

The different characters of stertor.—From having observed the snoring of sleep sometimes to take place through the nostrils with the closed mouth, and sometimes through the open mouth, and having also observed differences in the apoplectic stertor, I endeavoured to analyse the particular cause of each of these varieties by some experiments on myself and by clinical observation. I placed myself as nearly as possible in the condition of an apoplectic patient by paralysing my tongue, or rather by allowing it to assume its own position by gravitation. After a little practice, and with some care, I succeeded in effecting this. 1. I found that it required much more voluntary effort to snore through the nose and breathe stertorously through the mouth in the upright and prone positions than in the recumbent and supine, and that the greatest impediment to the respiration occurs when the jaw is dropped and the mouth most widely open. 2. I found that the deep, vibrating snore of sleep, with the closed mouth, depends upon the tongue pressing the velum palati upwards and backwards, thus narrowing the opening between the nose and pharynx, the velum vibrating as the air rushes through. Sometimes, when the mouth is partially open, the soft palate drops upon the tongue and vibrates as the air rushes between it and the tongue. To either of these noises in which the soft palate is concerned I have applied the name of "palatine stertor." 3. The harsh, sharp, husky noise occurring in apoplexy, with the mouth wide open, always arises low down in the pharynx, and depends upon the narrowing of the passage between its posterior wall and the base of the tongue. By holding a looking-glass before the face whilst producing this noise, it can readily be seen that the soft palate is in no way concerned in it. In the cases just recorded this was the nature of the stertor which existed, and as it arises solely in the pharynx I have given it the name of "pharyngeal stertor." 4. There is a variety of stertor in apoplexy which may be named "mucous stertor" as it depends upon the presence of mucus in the bronchial tubes. So common is this, either alone or in combination with one or other of the preceding varieties, that in "Hooper's Medical Lexicon" it it stated that "apoplectic stertor appears to depend upon the presence of mucus in the air tubes," as though it were always the cause.

Of these different varieties of stertor, that which is named "pharyngeal" is at first the most dangerous, for the greater the paralysis the more effectually does the tongue block up the passage, and each inspiration only adds to the distress by sucking the tongue lower down into the pharynx. Its danger is, however, not due alone to the gradual impediment it offers to the respiration, but also to the fact that at any moment this impediment may be absolute and cause death by suffocation. This has been before referred to in the remarks upon Case 1. We may observe a similar example in the snoring sleeper who, after drawing several inspirations with evident effort, at last comes to a sudden check from having been gagged by the tongue falling back. This will rouse him from his stupor and he will then sleep on quietly until the same thing recurs from his deepening sleep.

It is admitted that apoplexy may result (and very commonly does result) from an alteration in the state of the general circulation. I conceive that anything which would mischievously affect the circulation during the apoplectic attack would militate very considerably against the chance of the patient's final recovery. Let me suppose a case. A man with disease of the heart or large vessels on making some unusual effort falls down in a fit; he is taken up and laid on his back in bed. Stertor at once begins; if it be not relieved the respiration becomes impeded, venous engorgement of the lungs takes place, then of the right side of the heart, then of the jugulars and of the brain. And now another direct source of apoplexy exists—increased congestion of the brain, and this, too, with unaerated blood, itself a poison sufficient to destroy life. As long, then, as the stertor is allowed to continue the mischief increases and remedies will be of little avail. But suppose that when the man is taken up in a fit of apoplexy he is laid in such a position that his respiration cannot be impeded, that the blood may flow steadily on in its course, that he is placed in such a position, in short, that Nature will meet with no impediment in her attempt to right the temporary disturbance which a sudden effort brought about. Then, I think, we may fairly hope for a better issue, if judicious aid be afforded by means which the urgency of the case may render necessary. This especially applies to cases of congestion dependent upon, or complicated with, atheroma; the danger would then be doubly great, for the increased congestion might be more than the diseased cerebral vessels could bear; they might give way, and the case would become one of sanguineous apoplexy.

In the second class of cases of Dr. John Abercrombie (those not primarily apoplectic), where the symptoms depend upon an effusion of blood in the brain, if there be any hope it must at once be forfeited if the respiration be impeded, since this would increase the congestion of the cerebral vessels and cause the blood to make its way out of those which were ruptured with greater force. The same would apply to laceration of any of the sinuses or vessels of the brain from fracture of the skull. I remember to have seen a boy who had fallen from a bridge brought home in a state of syncope. Extensive simple fracture of the vault of the skull was detected. He was laid on his back on a table, and as reaction commenced he fell into a state of coma with stertorous breathing. In a short time the symptoms became so urgent that trephining was performed, whereupon a large quantity of blood made its escape with considerable force. The boy was relieved, but died three weeks afterwards. On examination after death there was found a large quantity of clotted and fluid blood on the surface of the brain, the superior longitudinal sinus was lacerated, and the substance of the brain was much injured. In a case of this kind, to impede the onward current of blood through the jugulars must be the first step towards death, for the blood would make its way where there was least resistance, through the wound of the sinus. If, however, there were no obstruction in its natural course we may fairly presume that it would follow that, rather than turn aside through an opening in which, perhaps, a coagulum had already formed.

Such, then, are the dangers which may result from a persistence of stertor in apoplectic and similar conditions; but there remain the other and more immediate dangers of the supine position. 1. Fluids or other foreign matters may make their way into the larynx from the mouth or the stomach. This I had repeated opportunities of observing in the dead subject when engaged on our original experiments in 1856; but that it is a real danger in the living man is placed beyond doubt by a remarkable case which is related in the *Medical Times* as having been under the care of the late Dr. Bristowe. A drunken man died from symptoms of suffocation. At the necropsy some of the contents of the stomach were found in the bronchial tubes.

The forms of stertor, then, which have a direct connexion with the apoplectic state are—the palatine, arising from the vibrations of the soft palate; the pharyngeal, from the gravitation of the tongue into the back of the pharynx; and the mucous stertor, from the presence of mucus or other fluids in the larger air-tubes.

CASE 4.—In October, 1863, a woman was seized with apoplexy. On my arrival there was a partial return to consciousness and the left side was found to be paralysed. There was pharyngeal stertor when the patient was in the recumbent posture and she appeared uneasy when she was placed on her right side, so she was placed on her left—the paralysed—side, when the stertor ceased. A blister was applied to the nape of the neck and she remained in this position for nine days. She was now better and spoke to me. Fearing a bedsore I desired the nurse to change her position by turning her from her left on to her right side. Soon after this was done she was distressed for breath and her countenance became livid. On my arrival, a few minutes later, I found the difficulty of breathing gradually increasing, the blistered surface and the ear, upon which she had lain, of a dark purple hue, and the pulse, which had before been weak and irregular, full and bounding. There were large mucous râles over the whole chest; she was quite unconscious, and death from suffocation was imminent. Finding that these symptoms supervened upon the change of position I had her replaced upon her left side, and immediately the pulse sank, the mucous stertor ceased, the breathing was relieved, the lividity of countenance

passed away, and the blistered surface, which had been almost black, resumed a bright cherry-red colour. This additional shock, however, proved too much for her, and she died the same day, calm and conscious.

The salient points of this interesting case are: (1) that pharyngeal stertor ceased when the patient was placed on her side; (2) that there was a slow but gradual improvement subsequently to this; (3) that mucous stertor and imminent death supervened when she was placed on the opposite side; (4) that relief was instant on resuming her original position; and (5) that a return to consciousness was coincident with the cessation of stertor—in other words, on the removal of the respiratory difficulty. On a careful examination of the chest after she had become quiet I found all râles slowly fade away from the right side, that which was uppermost, and the natural breathing return; but the left lung, which had been dependent throughout, was dull on percussion and deficient in respiratory murmur. The explanation now became clear—viz., that the dependent lung had become filled with saliva or mucus or froth, and that on changing the side the fluid, by gravitation, was finding its way across the trachea to the opposite lung, but in doing so it had been churned into foam by the ingoing air, giving rise to mucous stertor, and that this foam, by filling up the larger bronchial tubes, was quickly causing suffocation with all its usual results.

As a point of management, then, in a case of apoplexy it would appear necessary to keep the patient on one side and not to change it; but which side should this be? Healthy people when lying on the side breathe chiefly with that side which is uppermost, for the intercostal and other thoracic muscles of the lower side are fixed between the weight of the body and the bed, and the breathing of that side is necessarily almost entirely diaphragmatic.

I have reason to believe that in hemiplegia from progressive disease of the brain a low form of inflammatory action takes place in the lung of the affected side, due to disturbed innervation of the pneumogastric nerve of the same side. In a recent case of tuberculous mass in the centre of the brain which was under my care this was the case and precisely the same distress as above mentioned occurred from mucus when the paralysed side was placed upwards. It must be remembered, too, that in placing the paralysed side downwards the injured side of the brain is upwards, and therefore relieved from congestion, a condition always liable to occur when an injured part remains dependent.

Apoplexy, with much mucous stertor, is, I believe, always of the most grave and dangerous character, for it indicates as well as muscular paralysis loss of function (neuro-paralysis) of such vital nerves as the pneumogastric; and I believe that the time will soon come, now that cases can be so simplified by the removal of stertor, that by a careful consideration of the functions of the various nerves a very accurate diagnosis and prognosis will be arrived at even in the early stage of apoplexy. Here are two cases in illustration.

CASE 5.—A woman was found lying on her back, breathing stertorously and with great difficulty; the trachea was filled with frothy mucus and she was almost in a state of collapse. She was turned on to her right side, when the stertor and difficulty of breathing ceased. Seventeen hours afterwards she was lying quiet and comfortable; the depending cheek was dusky and congested, the upper cheek was pale. She was now turned on to her left side; the difficult breathing immediately returned and both sides of the face became highly congested; the breathing was shallow, and large moist râles were present in both sides of the chest; on resuming the original position all difficulty ceased. She died the next morning.

CASE 6.—A woman was seized on Sept. 24th, 1867, with left hemiplegia. She was unable to speak or to masticate and could only swallow liquids with much difficulty; the pulse was 80 and very feeble. She was placed on her left side. On the 28th (four days after) the respiratory murmur on the lower or left side was shallow and feeble, there were some râles, and the percussion sounds were dull. She was turned on to her right side, when immediately great distress of breathing and mucous stertor supervened; this gradually disappeared on replacing her on her left side. This shows that patients can get well after long resting on their sides. When turned on her back for the use of the bed-pan mucous stertor commenced, and it was noticed that in this position the intercostal muscles and the diaphragm acted more feebly on the paralysed than on the unparalysed side. On Sept. 29th there was a little more power and she was less excitable. The respirations, which had been 56, were now 44. She was able to remain half an hour on the right side before the difficult breathing commenced. The following day she was still better, and the dribbling of saliva, which had been very great, ceased, but she still had no control over her bladder or rectum. On Oct. 6th during the last week she had slowly improved. Several experiments of change of position had been made and it was found that as her power returned she could remain longer on the right side before the difficulty of breathing began, and now could remain one and a half hours in this position. In March, 1870, the patient was still alive and well, but had a good deal of weakness on the left side.

Remarks.—In its early stage this case was most critical. Had a little extra strain been put upon the patient she must have died, and no strain could have been worse than the persistence of a condition (stertorous breathing) which would indirectly cause obstruction in the jugulars. In the supine posture, from the paralysed and insensible condition of the pharynx much of the saliva which dribbled away in the lateral position would have entered the trachea and added to the trouble. Much might be said in illustration of this point and reports of many cases have been sent to me by friends corroborating these observations. They have reported cases of apoplexy in which, on the change of position, stertor has ceased and the patients have died peacefully and quietly, to the great relief of the distressed and sorrowing relatives. I have never in my own practice failed to put an end to stertor by position and management.

CASE 7.—At a medical meeting in May, 1862, after urging my views on stertor, the late Mr. Francis of Boughton stated that he had just left an old lady dying from apoplexy who had been in a state of stertor for many hours. At the November meeting in the same year he informed us that the old lady was still alive and well. On his return home in May he found her just as he had left her, dying, as he believed. He changed her position, the stertor ceased, and she gradually but perfectly recovered.

CASE 8.—The late Mr. Eustace Carver of Melbourne, a former house surgeon at the Middlesex Hospital and Nottingham Hospital, and a careful observer, was called to an aged patient who was in deep stertor and moribund. Life was evidently more a question of minutes than of hours. The position was changed, the stertor ceased, and the old gentleman lived for nine months.

Many cases have demonstrated that as power returns to the brain the pneumogastric nerves and probably also the sympathetic nerves regain their power and effusion into the lung ceases; and, moreover, it has been clearly shown that the lung is not injured by remaining inactive and filled with mucus for a long period. The consideration last mentioned induced me to adopt a lateral position in all condition of the lungs in which much mucus was secreted.

CASE 9.—In April, 1866, a little child, three months old, after having suffered from a slight catarrh for a few days, was seized with difficulty of breathing at night. When I arrived in the morning the child was livid, the eyes were sunken and half closed, and the pulse was remarkably slow, feeble, and irregular. The child breathed with great difficulty and had a loose mucous cough, feeble and ineffective. The quantity of mucus in the chest was so great that the child could not inspire and appeared to be dying. The patient was turned on the right side, ammonia was applied to the nostrils, and 10 drops of brandy were administered every quarter of an hour. On the following day the child breathed with greater ease, the expression had improved, and the pulse, though still slow, had a little more power. The air now entered the left side freely and the râles were few; there was no breathing at the right side. The child gradually recovered, but for several days there were bronchial breathing and bronchial voice on the right side. Before the child was turned on to the right side there was no difference on auscultation between the two sides.

In bronchitis generally, and especially in the bronchitis of the old, I endeavour to leave one lung free for breathing, and then, as vital power returns, the position is gradually changed. In the convulsions of children there is often a large flow of saliva and secretion into the bronchial tubes. This becomes immediately churned into foam and greatly impedes respiration. In the lateral position all this foam drains away, the breathing is freed, and recovery begins. In

epilepsy the fit will often cease at once by removing stertor, but here it requires a little more management than placing the patient on his side, for the spasms of the mouth, tongue, and fauces require opposing by various mechanical contrivances.

CASE 10.—In May, 1866, I was sent for to a phthisical patient who was said to be dying from hæmorrhage. I found him lying upon his back, partially elevated by pillows, and apparently breathing his last. His face was cold and ghastly, his jaw dropped, and his eyes were widely opened and staring. He made a few unsuccessful efforts to inspire, when some large mucous râles were heard in the trachea. The pulse could just be felt feebly flickering. He was immediately placed well over on the right side and ammonia was applied to the nostrils. A little brandy-and-water was introduced into the mouth, but there was no effort to swallow. A handkerchief was, however, soaked in brandy and a portion left in the mouth. The mouth and tongue were quite cold. In a minute or two the respirations became longer and air could be heard entering the uppermost lung, but none entered the lower. Gradually the râles diminished in the upper lung, air entered more freely, and the percussion sounds became more resonant. Consciousness, which had been utterly lost, gradually returned, and by the following morning he was perfectly himself and could have transacted any business. He lived for four days, breathing with one lung only.

CASE 11.—On March 22nd, 1894, I was hastily summoned to an apparently dying man. I found him lying on his back on the floor, motionless with the exception of occasional ineffectual gaspings; he was of a livid colour and his pupils were widely dilated. The feeble pulse could occasionally be felt but not counted. Three policemen and several coachmen were standing helplessly by. Observing blood on his clothes and about his mouth I opened the man's shirt and rapidly surveyed, percussed, and auscultated the front of his chest; finding more percussion dulness on the right side than on the left, and that no air was entering that lung, I gently turned him on to his worst side (the right), so as to leave the better lung free, and propped him up in that position with pillows. Each gasp now became a short gurgling inspiration, and signs of returning life began to show themselves by clutchings of the hands and spasmodic actions of the legs and an occasional moan. Some air entered the upper lung, the râles diminished, and the pulse became fuller and countable at 130 in the minute. I then left him in charge of Dr. E. B. Waggett who administered a hypodermic injection of caffeine in sodium salicylate and an enema of two ounces of brandy. In half an hour Dr. Waggett reported that the man had quite recovered from present danger and was talking naturally to his friends. On the following morning I saw the man in consultation with Mr. Wise, his own medical attendant, and found him still lying on his right side, looking wonderfully better and quite himself; the temperature was normal and the pulse was 120. He was expectorating freely blood-clots and blood-stained muco-pus. There were very few râles to be heard in the upper (left) lung, and the air entered quite freely, so that as far as the danger from suffocation was concerned the man was safe.

This case recalled another, similar in its onset, different in its result, but useful as a contrast and as a demonstration of the importance of the mechanical management of such cases in practice. When going round the wards in my student days the physician commented on the salient points of a case of phthisis in a young girl who was sitting dressed on the side of her bed. Ten minutes afterwards the physician was hastily summoned from the other end of the ward to see her again, and she was dead—at least, she had entirely ceased to breathe. She had been seized with hæmoptysis, the nurse had laid her on her back on the bed, and she had so become choked. At the necropsy large coagula were found in the trachea and bronchial tubes.

Lately I was taken by surprise in a case of hæmoptysis by a patient suddenly developing dyspnœa and cyanosis with starting eyeballs and dilating pupils whilst in the sitting posture. With sudden and violent effort he coughed up three or four large pinkish-grey masses similar in appearance to portions of emphysematous lung; on examination they proved to be coagula infiltrated with numberless fine air vesicles. It appears that in his terror of increasing his blood flow he had maintained the sitting position for some hours, and had studiously avoided coughing when he felt the râles in his chest, so that the small oozing from the affected (right) lung had gradually found its way into the sound lung, and had become inflated into large masses by the air vesicles which had slowly formed in the coagulating blood.

Death from tea in the lungs.—On Feb. 23rd, 1894, Dr. W. Hale White reported to the Clinical Society of London a case of a patient suffering from diphtheria paralysis who had died suddenly whilst drinking tea; after death one and a half ounces of tea were found in the bronchial tubes. Dr. White stated that after coughing for some seconds "the patient became very distressed in his breathing, exactly as if he had been suffering from asthma; there was at no time any evidence that the larynx was obstructed." The patient was dead in less than 10 minutes from his having taken the tea. The pulse was good to the end. It was assumed that the patient had died from spasm of the bronchial tubes from the specific action of tea on the nerve centres; but may it not be assumed, with even more confidence, that the patient was practically drowned with tea? One and a half ounces were found in his trachea after death. This is a large amount, and probably during life it was larger—quite enough, when mingled with mucus and churned into foam, to obstruct the main bronchi and thus to cause fatal suffocation. At the same meeting Mr. Pearce Gould related a case of suffocation in a child with diphtheria paralysis. Tracheotomy was instantly performed and the child was turned over, whereupon the bread-and-butter which the patient had been eating ran out of the wound in a liquid form and recovery ensued.

Dr. Frederick Weber told me of a case of death from suffocation in consequence of milk having been inspired in a case of diphtheria paralysis, so that bland fluids such as water and milk will cause death when introduced into the windpipe; we need not therefore assume that the specific influence of tea had anything to do with the cause of death in the case above referred to. We know what horrible distress supervenes on even one of the large bronchi becoming suddenly plugged by a cherry-stone or by a pea. In cases of drowning the amount of fluid usually found after death might not amount to more than was found in the foregoing case. It must always be remembered that the introduction of any fluid excites mucous secretion which, with saliva, inspissates the fluid and gives rise to foam bubbles, more or less large, and these add greatly to the difficulties of inspiration.

From these points of view it is clear that cases such as these may be successfully treated either by turning the patient on to one side, as in the cases of hæmoptysis just related, thus freeing one lung and so giving time for the obstructed lung to relieve itself by expelling or absorbing the intruded fluid; or relief may even more quickly be given by placing the patient on his face and pressing or striking on the back to assist the expulsion of the tea. Independently of its effect upon stertor "position" has a direct influence in many conditions allied to the apoplectic, such as chloroform-poisoning, drunkenness, &c.; and I have observed that in cases of great exhaustion the change from the back to the side is accompanied by immediate and great relief; the breathing, from having been carried on with evident effort, has become at once peaceful and easy. During sleep, when the vital powers are resting, it is not the back but the side which is selected as nature's position; and I believe the explanation to be that on the back the diaphragm has to lift the liver and abdominal organs with each inspiration, whereas on the side—especially the right side—the liver lies practically on the bed and the diaphragm can do its work without oppression.

The general conclusions which may, I think, be fairly deduced from the foregoing observation of facts are:—1. That a "laryngeal stertor" may be added to the three forms I formerly defined. 2. That the three forms of stertor which have a most important connexion with the apoplectic state are the palatine, the pharyngeal, and the mucous stertor. 3. That these three varieties, whatever their remote cause, are the immediate result of a local mechanical condition—a condition which may always and at once be changed to the great relief of the patients and sometimes to their permanent recovery. 4. That it is necessary to keep the patient on one side, that that side should not be changed, and that the paralysed side should be downwards. 5. That mucus and other fluids gravitate into and fill up the lower lung; and therefore that if the sides be reversed the mucus will find its way into the opposite lung. 6. That the fluid, crossing from the large bronchi of one lung to those of the opposite, becomes churned

into foam and causes dangerous obstruction to the respiration. 7. That the lung, by remaining inactive and filled with mucus for a long period, is not injured. 8. That these principles apply to all conditions in which blood, mucus, or fluid exists in the lungs and also to all conditions allied to the apoplectic, whether there be mucus or not. Finality in medicine never has, and probably never can, be reached. As the environments of man change so do his developments, both moral and physical; and the same may be said of all animal nature. We have, however, still left to us the first principles of the great laws of physics always at hand to apply to those changing conditions to which I have referred, and the object of these lectures has been to demonstrate to you many ways in which they can be practically applied to the relief of suffering humanity.

A CONTRIBUTION TO THE PATHOGENESIS OF CANCER.

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IT is certainly impossible to examine an epithelioma without being struck by the fact, for long well known to pathologists, that the epithelial cells distending the alveoli are identical in appearance with the epithelial cells in which the morbid process began; and, further, that the epithelial elements in the secondary tumours, though far removed from the site of the primary tumour, are identical with the parent epithelium. Here, then, the law prevalent in mammals that epithelium covers exposed surfaces is infringed. The cells leave their natural habitat and wander into and live amongst the subjacent fibrous and other tissues of the mesoblast. Not only so, but the delicate balance between waste and repair is disturbed and proliferation takes place in excess, resulting in tumour formation. If, then, in epithelioma, cells which are indistinguishable from the parent epithelium live and multiply in the tissues of the mesoblast, the interesting question presents itself to consideration—namely, Will the normal skin epithelium when placed under similar conditions continue to grow, and if it does so, what will the relationship of the growth be to cancer? This question, and many closely allied to it, have engaged the attention of pathologists ever since the structure and development of cancer have been made objects of study. Thus, why does epithelium tend to cover the surface of the body and not dip down into the underlying tissues? This has never been satisfactorily explained. Then, again, why does it not tend to cover an indolent ulcer? Why does it accumulate in a mass at the edge and penetrate to a certain extent down amongst the sub-epithelial fibrous tissue? What is the meaning of this? Possibly it is because the surface of the ulcer is formed by exposed fascia, tendon, &c., covered by sloughing material. Whenever the slough has been removed by surgical treatment and the surface covered by young connective tissue with vascularity then the epithelium tends to run over instead of accumulating at the margin. There must be a proper young connective-tissue basis before the epithelium spreads, and all surgical treatment aims at stimulating the surface of the ulcer so as to produce this. Then, and only then, as a natural consequence the callous margin disappears and the epithelial growth is directed over the surface. So long as this young connective-tissue basis is absent the epithelium has no tendency to run over the abraded part but accumulates in a hard callous mass at the edge, penetrating to some extent the fibrous tissues beneath. This penetration, however, is more apparent than real, because the granulation tissue at the margin tends to sprout out through the callous mass, giving the appearance as if the accumulated epidermis had penetrated further than really is the case. Even here the penetration is comparatively slight and not such as one finds in an epithelioma of the skin. Not only will the epidermis at the edge run over this young connective-tissue basis once it is formed but pieces of epidermis taken from a distance, as in the skin-grafting of Reverdin and Thiersch, will also take hold upon it and grow. Again, in healing by first intention one frequently sees a piece of epithelium buried in the young cicatrix, but here there is good reason to believe that as the cicatrix increases in consistence it vanishes and becomes absorbed. Moreover, this appearance of an island of epithelium being buried is sometimes, at all events, fallacious for the reason that in cutting through the skin perpendicularly in making a microscopic section a portion of what is in reality a peninsula of epidermis is lopped off and in a single section gives rise to the appearance of an island of epidermis separated from the parent mass on the surface.

Among surgeons it is a pretty well-recognised fact that cancers of the skin are apt to form in old cicatrices. Even granted that this is so there is still wanting an explanation of how these tumours originate. Is it that a fragment of epidermis during the process of healing has become separated from that which covers the surface of the body generally and begins to grow on its own account and gives rise to a cancer tumour? Or may it not be, if we accept the parasitical origin of cancer, that the epidermis so buried has had in contact with it some parasite living on the surface of the skin which sets up the epithelial stimulation?

On these matters we are as yet completely in the dark, but so far as our knowledge at present goes the trend of opinion seems to favour the notion that normal epidermis, when separated from its proper nidus as an investing layer for the surface of the body and other exposed surfaces and buried deeply in tissues of mesoblastic origin, has the tendency to die and to become absorbed. This has been the current opinion of pathologists for many years past, but as all such matters are dependent for their refutation or verification upon experiment it is only natural that those who have been interested in the subject should have looked forward to evidence *pro* or *con* of this nature. Such experiments, although as yet not very numerous, have been performed abroad, and also to a certain extent in this country, with somewhat varying results. Kaufmann[1] in 1884 made a number of experiments upon the embedding of skin with a view very much similar to my own—namely, that of ascertaining whether epidermis when placed deeply in the tissues underwent any proliferative change comparable to what takes place in the case of a skin cancer. His most important experiments were made on the combs and wattles of fowls, such being selected on account of the absence of hairs on their surface or glands in the substance. The above structures are of the nature of erectile tissue, the blood-vessels being very large, somewhat cavernous and very numerous, and from a close inspection of them he was able to verify what is generally held to be the case—namely, that they are devoid of glands. His experiments consisted in circumscribing an island of skin surface by a continuous incision, raising flaps on each side and stitching them together over the island of skin. He made a large number of experiments and examined them at different times, the general result being as follows. The submerged epidermis began to grow apparently quicker than that of the flaps covering it and rose up at the margin so as to form a hollow structure into the opening of which there spread a quantity of young connective tissue and blood-vessels. The cavity in course of time closed so as to form a hollow tumour-like structure having very much the appearance of an atheroma cyst. The resemblance was rendered all the more striking by the epithelium on the inside of the cyst desquamating and forming an atheroma-like mass. The cyst lay embedded in the tissues and did not form any connexion with the epidermis of the flaps. The epithelium forming its wall did not die but continued to grow until the cyst-like cavity was completely closed. Thereafter, after a matter of 210 days, it appeared to remain stationary. Round about the cyst-like structure numerous giant cells formed, very much as they do round foreign bodies introduced into subcutaneous tissues. From minute examination he was convinced that these giant cells had no connexion whatever with the epithelium either of the island of skin or of the investing flaps, and he is inclined to trace the formation of some of them at least to the endothelium of the blood-vessels. Most of the giant cells were inclosed singly in a circumscribed space lined by cells of small size; others, however, were arranged in groups within a space lined by cells of small size, and in the centre of this aggregation of giant cells there was a channel-like lumen. These collections of giant cells he traces to the blood-vessels of the part and is perfectly clear that they were not the offspring of the epidermis anywhere in the neighbourhood.

The chief points of note in these experiments were in the first place that the submerged epidermis did not die, and in

[1] Ueber Enkatarrhaphie von Epithel; ein experimenteller Beitrag zur Entstehung der Geschwülste, Virchow's Archiv, Band xcvii., p. 236.

the second place that it tended to form an atheroma-like cyst which apparently in course of time came to lie as an inert tumour in the part in which it had been embedded. He also made similar experiments with the skin of young dogs but was apparently less successful with these, most of the wounds having suppurated.

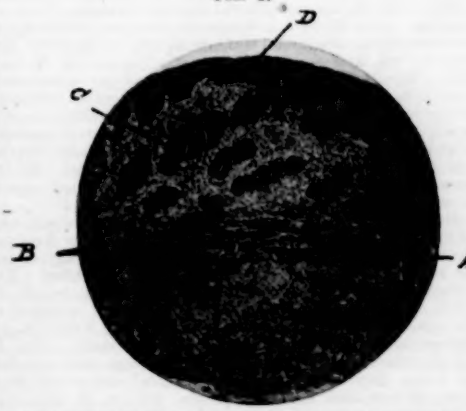
Chronic irritation seems undoubtedly to be a factor in the etiology of cancer, for it is a matter of everyday clinical experience that common sites of cancer in the human body are parts which are liable to frequent mechanical irritation. Then, again, the effects of chemical irritants in the production of malignancy is seen in the cancer of paraffin and tar workers. D'Arcy Power [2] investigated the effects of chronic irritation upon living tissues, more especially epithelium. His method of procedure was to irritate for a considerable period by the application of iodine liniment the mucous membrane of the vagina and then to observe the changes produced. The animals he utilised were rabbits, guinea-pigs, and rats, and the interest of his experiments lies in the fact that he was able to produce appearances resembling in some respects those seen in cancerous growths. These changes were mostly of the nature of modifications of cell structure, such as vacuolation and œdema, while cell-nest formation was also observed. In the case of a guinea-pig, after irritating the vagina for some time, he found a lumbar gland enlarged which on section presented appearances almost of an endothelioma.

Acting on a particular theory as to the origin of cancer Beatson [3] instituted a number of experiments with the view of ascertaining whether the epithelium of the ovary and testicle of rabbits would proliferate when transplanted into other tissues or when inoculated with cancer from the human subject. In no case, however, did he meet with a positive result, the transplanted tissues being completely absorbed.

The object of my own experiments was to put to the proof what has been asserted—namely, that epithelium will not grow when taken from its natural site and buried deeply in the tissues, more especially those of mesoblastic origin, or in the various cavities of the body. In respect of the line of these experiments no doubt they have been anticipated to a certain extent by those of Kaufmann and others, but though the facts ascertained in these previous experiments were, so far as they went, convincing, yet they lacked confirmation, and it was partly with a view of verification and partly with a view of extending them that I undertook the present research. In Kaufmann's experiments the method of procedure was chiefly, as above said, that of covering an island of skin still retained in its natural position as regards the subjacent tissues by two flaps of skin raised up on either side of it. In this respect the experiment is less crucial than when the epidermis and other layers of the skin are detached from their natural site everywhere, except at one side which is held in connexion with the surrounding blood-vessels, and are then buried in the subcutaneous tissues; still less crucial than when the skin is completely detached from its surroundings and buried deeply in a tissue of which it is not a constituent part. The animals which I employed were guinea-pigs and rabbits, some full grown, others comparatively young. They were anæsthetised with methylated ether and thereafter the area to be operated on was shaved and thoroughly disinfected and the operation was conducted with strict antiseptic precautions throughout. Collodion and absorbent wool after the application of spirit and ether were used as a dressing and the healing in all cases was by first intention, the animals remaining in good health. In preparing the sections afterwards, the tissues were dehydrated and then embedded in celloidin and cut either in a Schanza or freezing microtome in the usual way. The stains employed were logwood and eosine.

Experiment No. I.—Incisions were made through the skin of the abdomen of a guinea-pig, mapping out an ellipse about half an inch long and a quarter of an inch wide, and thereafter the edges were raised up so as to form flaps and united by sutures over the ellipse, so that it came to lie in the subcutaneous tissue under a linear wound. In such respect this was a repetition of Kaufmann's experiment. At the end of 14 days the animal was killed and a quadrilateral part of the whole thickness of the abdominal wall inclosing the wound and buried skin was cut out. In this case sections were made at right angles to the linear wound above mentioned. The flaps had united by an extremely fine cicatrix depressed at the immediate point of union as in ordinary healing of a wound by first intention. The epidermis was at the point of union very little if in any degree thicker than the epidermis of the surrounding parts. The union, in fact, seemed to be typically that of first intention. The cicatrix uniting the flaps was so fine that it could hardly be traced, a few spindles running downwards in a somewhat irregular fashion being all that indicated the line of union. As regards the portion of skin which was buried beneath the flaps taken from either side, the greater part of it seemed to have vanished. The epidermis had completely gone and the only portion that seemed to be left was that which corresponded with the corium (Fig. 1, *a*). This was densely infiltrated with spindle-shaped fibroblasts and was united to the superjacent flaps by a layer of cicatrix in which the connective-tissue cells were still more abundant than in the corium, some of them in the round stage, some elongating into spindles. Chiefly within this cicatrix uniting the remains of the buried piece of skin, but partly in the remains of the skin itself there were numerous sections of hairs to be seen evidently in process of absorption (Fig. 1, *b*). They appeared translucent and somewhat shrunken and their outline in many cases was irregular. The fact of many of these lying in the cicatrix between the embedded piece of skin and the flaps embedding it would seem to show that considerable absorption not only of the epidermis but also of the subjacent corium had taken place. In fact, the part of the skin left seemed to be the deepest layer of the corium and this again was attached to its subcutaneous fat tissue in a natural fashion. Running through the above-described cicatricial tissue, uniting the under surface of the united flaps to the upper surface of the embedded piece of skin, there was a fair number of capillary blood-vessels engorged with blood. There was no evidence of giant cells and in the remnants of the embedded piece of skin the skin glands were either absent or in process of absorption. The subjacent parts seemed to have undergone very little alteration farther than there being rather more cellular material round the blood-vessels and in the lymphatic spaces.

FIG. 1.



(*a*), Remains of corium densely infiltrated with fibroblasts and containing numerous sections of hairs (*b*) in process of absorption; (*c*), sections of normal hair follicles of flaps; (*d*), epithelium of superjacent flaps. × 50 diameters.

Experiment No. II.—The above experiment was repeated and the animal was killed after the same lapse of time. The appearances differed in no way from those just described.

Experiments No. III., IV., V., and VI.—The same experiment was performed in four guinea-pigs which were killed after three, four, five, and nine weeks respectively. After three weeks the hairs of the buried ellipse were considerably less distinct than in the previous experiment; also the fibroblasts were less numerous and the young fibrous tissue was more abundant. After four weeks hardly any trace of the buried ellipse could be found at all, while after five weeks not a vestige was to be seen.

Experiment No. VII.—An incision was made through the

[2] Brit. Med. Jour., Oct. 14th, 1893.
[3] Ibid., Feb. 18th, 1899.

linea alba of a guinea-pig and the abdominal cavity was opened. A piece of skin half an inch long and a quarter of an inch wide was detached from the abdominal wall and stitched to the parietal peritoneum with the epithelial side next the abdominal cavity. Three months afterwards the animal was killed and the abdomen was opened. No trace could be found of the transplanted skin and the internal organs appeared to be healthy in every way.

Experiment No. VIII.—From the abdomen of a guinea-pig a rectangular tongue of skin one inch long and half an inch broad was dissected up but left attached at one of its narrow ends. The skin under the attached end and for a little distance behind was undermined so as to form a small pocket in the subcutaneous tissue into which the dissected tongue mentioned was turned so that it came to lie under the skin with its epithelial side downwards. By making relaxation incisions the oblong gap left was closed, forming a T-shaped incision. After 14 days a square-shaped piece of the whole thickness of the abdominal wall containing the inverted skin was cut out and sections were made parallel to its long axis. Here, as in the case of the buried ellipse experiments (Nos. I. to VI.), no vestige of the buried epithelium remained. At the point where the skin turned so as to dip into the subcutaneous pocket the epithelial layer was well marked, devoid of hair follicles, and ran evenly on without dipping into the underlying tissues. Immediately under this the remnants of the rectangular tongue of skin presented appearances very similar to those seen in experiment No. I.

Experiment No. IX.—An oblong-shaped tongue of skin with its long axis at right angles to the linea alba was dissected up from the right side of the abdomen of a guinea-pig, leaving the base which was at the linea alba still attached. The abdominal cavity was afterwards opened beneath the attachment, the tongue of skin was turned in and attached to the parietal peritoneum on the left side by silkworm-gut sutures, so that it lay with its epithelial surface next to the intestine. The abdominal wound was then stitched up. Ten days afterwards the whole abdominal wall was cut out and the site of the tongue of skin was found covered with plastic exudate. The portion of tissue around and including this was separated from the surrounding abdominal parietes and sections were cut at right angles to the linea alba. Just where the tongue of skin ran through the abdominal wall to reach the peritoneum a small depression was noticed on the surface of the section. This depression was covered by epithelium and in the young cicatrix immediately below were one or two islands of epithelium, but on tracing the tongue of skin further on no epithelium could be seen, while the fibrous tissue stained well with eosine but failed to react to the logwood, an appearance which probably indicated that the tongue of skin was dead or in process of absorption. The hair follicles were fairly well marked and retained to some extent the logwood stain. The vessels did not appear to have been unduly constricted. The change that had taken place in the tongue of skin seemed to have been alike with that which occurred in Experiments I. to VI. where the skin was not detached but simply embedded in an abnormal situation.

Experiment No. X.—An incision through the skin and subcutaneous tissue was made over the most muscular part of the hip of a rabbit and an inter-muscular septum was found. This was penetrated so that the adjacent muscles were separated for a short distance. A small compartment was thereafter cut out of the muscle on one side and into it was placed a piece of skin detached from the hip, about three-eighths of an inch square. The piece of skin was rolled in a section of sterilised sponge and held together by fine catgut. The inter-muscular space and the skin incision were closed. Four and a half months after operation the animal was killed and on exposing the inter-muscular septum the sponge with its contents inclosed in the compartment could be felt as a hard round nodule covered with some fat. A piece of muscle with the nodule in its centre was cut out and sections were made. The sections showed a central oval portion, evidently the nodule with its sponge, &c., and an outer surrounding area. The latter was seen to consist of muscle-fibres cut in various directions. Immediately within this and encircling the oval portion a thin layer of fat was found. The nodule consisted of a small central part stained almost entirely with the eosine and a surrounding part deeply stained with logwood. The central eosine-stained part proved to be the buried skin (Fig. 2, *a*). This was found cut in various directions in different sections, but those in which the skin had been cut perpendicularly to its surface showed best what had happened. The line of demarcation between the epidermis and the subjacent corium (Fig. 2, *b*) was well marked, the epithelial remains being coloured deeply with the logwood but in a very diffuse fashion, while the subjacent corium had taken on the eosine stain alone. Running downwards into the latter were the remains of the hair follicles very indistinctly mapped out and with the stumps of the hairs still remaining in their centre (Fig. 2, *c*). Neither

FIG. 2.

Centre of nodule containing skin (*a*) (the light-coloured part to the right) showing the line of demarcation (*b*) between the epithelium and the subjacent corium penetrated by bundles of hair stumps (*c*) and surrounded by the dense mass of amorphous caseous-looking material with sponge framework (*d*). × 50 diameters.

in the remains of the epidermis, the hair follicles, nor the subjacent corium were there any individual cells to be seen, clearly pointing to the fact that the piece of embedded skin was dead and underlying disintegration. The superficial layers of epidermis were converted into a granular amorphous mass which coloured deeply with logwood, but in which epidermic cells were indistinguishable. Immediately

FIG. 3.

Periphery of central oval portion showing sponge framework with caseous amorphous-looking material (*d*) penetrated for a short distance by fibroblasts (*e*) with bundles of newly-formed fibrous tissue (*f*). × 50 diameters.

surrounding the skin and making up the rest of the oval nodule were to be found the branching fibres of sponge framework (Figs. 2 and 3, *d*). The interstices of its fibres were everywhere filled by a dense mass of amorphous caseous-looking material, except at the circumference of the nodule, where for a short distance this was penetrated by

great numbers of round and spindle-shaped cells with corresponding single nuclei, evidently fibroblasts (Fig. 3, *e*), with here and there bundles of newly formed fibrous tissue and occasional capillary blood-vessels (Fig. 3, *f*).

Experiment No. XI.—This experiment, which was performed also on a rabbit, was precisely similar in detail to the previous one, but the animal was killed two and a half months after operation. The appearances differed in no respect from those of the previous experiment except that the layer of fibroblasts at the periphery of the nodule was not so deep. The epidermis in this experiment also was represented by an amorphous granular mass.

These conclude my experiments with natural epidermis, and while making them, having recently excised an epithelioma of the cheek and had an opportunity of getting some cancer tissue from the bladder of a living subject, I thought it might be opportune to transplant these under the same circumstances as in the foregoing experiments where the skin was completely detached. As is well known, cancer transplantation experiments from the human subject have been made to the lower animals in numerous instances previously mostly with negative results, but as the results in this case agree so closely with the other results I have obtained with normal epidermis perhaps it may be of interest to quote them in this connexion.

Experiment No. XII.—An incision was made through the skin of the back of a guinea-pig and a small pocket formed in the subcutaneous tissue. Into this a small piece of a recently excised epithelioma of the cheek was placed and the wound stitched up. The animal remained perfectly well and two months after the experiment it was killed and the site of operation was examined. No trace, either naked-eye or microscopic, could be found of the epitheliomatous tissue, the scar being perfectly healthy, as were also the internal organs.

Experiment No. XIII.—A portion from the centre of a cancerous nodule taken from the bladder was buried in the subcutaneous tissue of the abdominal wall of a guinea-pig with the same result as in experiment No. XII.

Remarks.—The results of my experiments, it will be seen, although conceived on the same lines as those of Kaufmann, are in some respects directly opposed to those obtained by him. As previously detailed in the synopsis given of his experiments, the buried epidermis even after a term of 210 days continued to live and became converted into a cyst-like tumour. On the contrary, in my own case I found invariably that the epidermis dies, quite irrespectively of the skin being entirely separated from its normal surroundings and its natural blood-supply, or whether the blood-supply is still continued. This seems a very curious antagonism in the results and how it is to be accounted for is not quite clear. Quite possibly the epidermis of the cock's-comb or wattle possesses greater power of vitality than the ordinary epidermis, otherwise it is difficult to explain the discrepancy which prevails in the results of his experiments and my own. So far, at any rate, both sets of experiments seem to be at one in this respect, in that they show that when epidermis under varying conditions is transplanted into or buried beneath a tissue of mesoblastic origin even though it may continue to live it does not manifest the properties of a cancerous growth. Even in the cyst-like tumour which was formed in Kaufmann's animals the character of the growth was essentially what might be called homologous. In none of his preparations did he discover a heterologous breaking up of the epidermis and its invasion of the tissues of which it is not a normal constituent. So far as these two sets of experiments point the lesson we are therefore bound to conclude that a cancer tumour is not merely epidermis which has found its way deeply into the underlying parts, but that the epithelium entering into the composition of these tumours must for some ulterior reason be endowed with specific properties, not merely of proliferation, but of burrowing into foreign parts. What this particular property depends upon, whether it is parasitical or not, remains as yet, we may say, in great part unsettled. On the one hand, we have the allegation made by Lack[4] that, in the case of the epithelium of the ovary at any rate, all that is necessary in order to cause it to exhibit the properties of cancer epithelium is to set it free in a cavity such as the peritoneal. On the other hand, we have authors such as Plimmer[5] asserting quite as confidently that the disease is a parasitic one, that the parasite can be cultivated artificially, and that when it is introduced into the system of a suitable animal it occasions a tumour at least of epitheliomatous nature. In how far we are to conclude for the one view or the other or whether the truth may reside in either is probably in the minds of most pathologists and practical surgeons as yet of the nature of a *questio vexata*. It has been asserted by Shattock[6] that cancer is a disease of rabbits to which they are subject naturally, and so far as I am aware Lack has not succeeded in repeating successfully his extremely interesting experiment. The coincidence of the outbreak of cancerous disease with the scraping of the ovary and transplantation of its epithelium to the peritoneum seems on the face of it a very remarkable one, and quite possibly it is an experiment which might succeed in one out of a large number of instances, but until this experiment or one allied to it has been repeated successfully most pathologists and surgeons will, I am afraid, be inclined to hold the case *sub judice*.

My experiments have a further important bearing on the whole subject of epithelial transplantation and proliferation when taken in connexion with those of Ljunggren and Wentscher. Ljunggren[7] preserved carefully sterilised patches of human skin in sterile ascitic fluid and to his surprise found that even for as long as three months the cells of the deeper layers showed well-stained nuclei and good protoplasmic structure. Not only so, but he also discovered the very remarkable fact that if these pieces of skin, after being retained in the sterile ascitic fluid, were transplanted to a granulating surface that not only did they become united to it, as might have been the case with many bodies destitute of vitality, but, as proved by microscopic examination, that the pieces of skin continued to live, took hold upon the part, and became incorporated with it. Strange as such a statement may appear to any biologist and sceptical as one might be as to the truth of Ljunggren's allegation, these experiments were very shortly afterwards quite independently not only corroborated but extended by Wentscher.[8] Briefly stated, the most important points in Wentscher's extremely interesting paper are that he excised patches of skin ("Thiersch'sche Läppchen") from the living subject, either the subject of experiment or derived from another person, in their entire thickness and including a small amount of subcutaneous fat tissue. The pieces measured six by four centimetres or thereabouts and immediately after being excised (by preference from the skin of the leg) they were treated by one of two different methods. Either they were placed in aseptic 0·6 per cent. solution of common salt, antiseptic precautions being used all through the course of the operation, or they were merely hung up by means of a silk thread in a sterile bottle plugged with cotton-wool. In either case the pieces were left for a varying time, up to 22 days at the longest. In the case of the piece of skin hung up in the sterile bottle the surface had become to some extent mummified, dry, and of a brownish colour, and on the day previous to transplanting it it was placed for a matter of 24 hours in the above salt solution, by which time it had again swollen up and resumed in great part its normal aspect. These pieces of skin, treated by the methods just detailed, were then placed in the midst of a healthy granulating surface which as far as possible was rendered aseptic, but previously to the application of the graft a piece of the granulating surface was completely excised, either corresponding to the dimensions of the graft or somewhat smaller; in fact, in some of the experiments the graft overlapped the edge of the wound. Extraordinary to relate, it was found that after a period of from three to nine days the grafts were found to have formed an attachment to the underlying surface. The superficial horny epidermis tended to desquamate, leaving, however, the underlying rete Malpighii, which assumed a peculiar transparent and glossy appearance in contrast to the appearance of the surrounding skin. As soon as the graft had taken hold upon the surface pieces were excised from the centre for the purpose of histological examination and, curious to relate, not only was the epidermis found to retain evidence of vitality in the staining of its nuclei and preservation of its protoplasm, but was in process of active mitotic division. Vessels very soon penetrate into

[4] Journal of Pathology and Bacteriology, July, 1899: "The Pathology of Cancer—an Experiment."

[5] The Practitioner: Special Cancer Number, April, 1899.

[6] Brit. Med. Jour., Jan. 20th, 1900, p. 136: A Criticism of the Mechanical Hypothesis of the Origin of Cancer.

[7] Progressive Medicine, March, 1899, quoted from "Om Hudepiteletsförmaga utanför Mannisk-Organismen Kunna Bibehalla Lifvet," Nordiskt. Medicinskt. Archiv, 1898, Haft 2.

[8] Beiträge zur Pathologischen Anatomie und zur Allgemeinen Pathologie, Band xxiv., 1898, p. 101.

the graft and as soon as they reach the papillary layer of the cutis vera this activity of the epidermic cells becomes manifest. In those experiments where the graft overlapped the edges of the wound these edges curled up and apparently died, but the portion which was placed in contact with the area from which the granulation tissue had been excised continued to live, became attached to and completely incorporated with it, and in this way brought about the healing of the wound. The immersion in salt solution of the patches or the drying of them previously to transplantation had little or no effect in destroying the vitality of the epidermis even after so long a time as something like three weeks.

In my own experiments the epidermis was placed under conditions which might be reckoned the most suitable not only for its continuing to live but for reproducing itself. Yet as the account of them conclusively shows, in no case, modify the experiment as I chose, did the epidermic continue even to live beyond a few days, and in some instances after a matter of 14 days not only had the epidermis disappeared but even the true skin had almost entirely vanished. In fact, the whole skin graft had practically entirely disappeared. Apart from the drying and immersion in the various liquids quoted in Ljunggren's and Wentscher's experiments the main difference in their experiments as compared with mine was the fact that the one set of grafts was placed upon an exposed surface while the other set was buried deeply in the underlying tissues or placed in the abdominal cavity. What the difference in the result was due to, why the skin continued to live under such extraordinary circumstances and became incorporated with the surrounding tissues, and why in the other case it invariably died and was absorbed, appear to me a complete mystery. We are almost forced to believe that the exposure on the surface, whatever the influence be which is brought to bear upon the epidermis, is the main factor which determines whether transplanted epidermis will live and grow or not. In Wentscher's experiments it was found that certain islands of epidermis became separated and pushed out from the glands contained in it, but apparently these tend either to come to the surface or die out. Even at some parts of the epidermis thus grafted the rete Malpighii was found to extend downwards in processes for a certain distance, but in none of the cases is it recorded that anything like a cancer tumour resulted. These appearances were nothing more than one sees so frequently in epidermic surfaces under the influence of stimulation.

In conclusion, I have to thank Professor D. J. Hamilton for very valuable help during the above research. I am also indebted to Dr. J. S. H. Walker and Dr. G. M. Duncan for the micro-photographs.

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A CASE OF TUBERCULOUS ISCHIO-RECTAL ABSCESS AND FISTULA, WITH LARDACEOUS DISEASE OF THE KIDNEYS.

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A MAN, aged 32 years, was admitted to the Gordon Hospital on August 29th, 1900, complaining that he suffered a great deal from constipation. He said that from the constant straining efforts which he felt compelled to make he would frequently pass blood which would be followed by diarrhœa or a discharge of mucus and a feeling of soreness. For the last two years the symptoms had been getting worse; the pain on defecation had been intense and the discharge of mucus and diarrhœa had become constant. The patient had been in India for 10 years. Though no definite history of syphilis could be elicited there were two somewhat suspicious-looking scars in the skin over the right side of the liver. He had never had dysentery. An abscess in the right loin had been opened, the scar from the operation being apparent. In both groins there was an enlarged gland. On the left side this was partly caseating, the bluish skin over it being undermined; on the right side, though there was no actual discharge, the skin was adherent, and the gland looked as though it would break down on the slightest provocation. The patient was evidently a tuberculous subject.

The operation was performed on Sept. 4th, when a large ischio-rectal abscess on the right side was found which was opened and enlarged and the cavity thoroughly scraped. A small fistulous track ran upwards from the cavity to the interval between the two sphincter muscles on the right side. This was laid open in the usual way. Immediately in front of the lower end of the coccyx a somewhat ill-defined thickening of about the size of a hazel nut could be felt in connexion with the walls of the rectum. It was at first difficult to determine whether this thickening had any connexion with the abscess cavity or fistula mentioned above, but eventually it was found possible to pass a probe from the internal opening between the sphincters into the thickening. The intervening track was found to be directed from the right to the posterior aspect of the bowel. This was thoroughly divided with Allingham's scissors, and in so doing the whole of the internal sphincter muscle was divided. The thickening in front of the coccyx was evidently an old abscess cavity, the walls of which had become much indurated. There was little bleeding at the operation. The wound was carefully dressed from the bottom with wool wrung out in a perchloride of mercury lotion (1 in 4000).

On Oct. 13th the wound was looking healthy, though there was still a large unhealed surface over the site of the fistula. The patient, who had previously suffered from complete incontinence, was now able to retain his motions for a short time. On the 20th the contraction of the sphincter muscles was good, and the motions could be retained for the greater part of the day. The evening temperature ranged from 99·4° to 100° F. The wound, which was not yet healed, was dressed with nitrate of silver (four grains to the ounce). The patient subsequently had diarrhœa, and on the 30th the granulating area, though a little less extensive, was not so healthy. The evening temperature remained the same. On Nov. 27th the patient was examined under an anæsthetic, when the ulceration over the site of the operation wound was found to extend upwards for one and a half inches. The patient left the hospital on the 29th having been directed to keep the bowels open, and to have the ulcerated surface dressed twice a day with calomel ointment. On Dec. 14th considerable œdema of the ankles and legs was noticed. The urine was quite clear, its specific gravity being 1015; it contained nearly a quarter of albumin. On Jan. 1st, 1901, the œdema became general and extended to the face; the eyelids were not much swollen. On the 12th the œdema had entirely subsided, except from the genitals. The urine was still clear and contained about a quarter of albumin. The ulceration in the rectum had almost disappeared, but there was a slight tendency to constriction; the forefinger, however, could easily be admitted. There was no pain on defecation and no incontinence. During February and the early part of March the patient was able to be up for the greater part of the day, and he had no trouble whatever with the rectum. On March 23rd there was a slight discharge from the rectum but no pain on defecation and no stricture. On April 20th the patient complained of intolerable itching all over the body. The scrotum was found to be ulcerated and the left epididymis swollen and painful. The abdomen was large and the œdema about the ankles and knees was still apparent. On May 11th the œdema became again more marked and the abdomen was larger and a little fluid was present in the abdominal cavity. The urine still retained the same characteristics; its specific gravity was 1015, it was quite clear and absolutely free from casts, and on boiling it became nearly solid from the large amount of albumin present in it. On the 22nd, after 10 days' complete rest in bed, the œdema had again entirely disappeared except from the scrotum and penis, the discharge from the rectum had ceased, there was no pain on defecation, and there was no stricture.

REMARKS.

With such signs of tuberculous disease it can well be imagined that the patient was not the most favourable subject for operation, yet in spite of this the condition of his rectum has been much improved. Except for a slight discharge—which only comes on after he has been walking

too much—he suffers no inconvenience, though at one time it seemed almost certain that a stricture would be formed, but this has been prevented by the daily passage of the finger. Another point worth noticing is the fact that though the internal sphincter muscle was completely divided, the patient has now entire control over the bowel, the contraction of both sphincter muscles being extraordinarily good.

From the medical aspect there can, we think, be no doubt that in this case the symptoms were due to the presence of lardaceous degeneration of the kidney. The marked œdema, the abundant urine of clear and non-albuminous appearance, the enormous amount of albumin, together with the total absence of casts, all point in this direction. Further, the presence of the more usual forms of nephritis is excluded by the normal condition of the heart and vessels. Reduplication of the first and accentuation of the second sound were altogether absent, and there was no hypertrophy of the left ventricle. The pulse, too, was very far from presenting the qualities found to characterise chronic renal disease.

The case seems to be an important one in the light of the difference of opinion which exists concerning the nature of the renal lesion which accompanies tuberculosis. Quite recently Dr. Landouzy and Dr. Bernard [1] published a paper in which they upheld a contention that tuberculosis, pulmonary and other, acts on the kidneys through the effect of the toxins which appertain to the activity of the tubercle bacillus. These authors maintain that the bacillus has no direct action on the kidney structure, but that a chronic inflammatory process is engendered by the "toxin" of the bacillus which eventuates in a chronic parenchymatous nephritis. Quite opposed to this view is that of Dr. A. Brault [2] who strongly criticises the argument of Dr. Landouzy and Dr. Bernard. He says that there is no evidence whatever of the existence of such a form of nephritis as that described by the writers just named. Dr. Brault attributes all the symptoms referred to by Dr. Landouzy and Dr. Bernard as being the result of the presence of amyloid disease of the kidney. He points out, further, that the so-called "large white kidney" of old days is neither more nor less than this same lardaceous degeneration of the organ. We are in entire accord with Dr. Brault on this subject. We do not accept the arguments which would attribute to tuberculosis of the lungs and other organs the power of initiating kidney changes which are *sui generis* and are due to the action of a "toxin" of which nothing is known. But as for the "large white kidney"—a term happily now nearly extinct—we have no doubt at all that it is merely a more or less marked form of amyloid renal disease. It will be noticed that in the present case the symptoms are just those which were formerly attributed to the presence of the "large white kidney"—viz., large quantities of urine and of albumin, much œdema, and considerable pallor. The presence of tuberculous disease no doubt accounts for the lardaceous degeneration of the kidneys, a condition comparatively rare and one which has given rise to great errors, both as regards pathology and diagnosis. For this reason we think that the present case is one of some importance as elucidating a form of renal disease which has given rise to much misconception.

[1] La Presse Médicale, March 16th, 1901.
[2] Ibid., April 6th, 1901.

INFANTILE MORTALITY AT BATH.—At the meeting of the Bath Sanitary Committee held on June 24th the medical officer of health reported that he had caused leaflets to be distributed in regard to the treatment of children in the city. Dr. Symons added that 31 children had died from diarrhœa in 1898 and 30 in 1899, whereas in 1900 only five deaths had occurred from the disease.

DISTRIBUTION OF CHARITABLE FUNDS.—The assistant commissioner of charity inquiries (Mr. Cardew) has been holding investigations in connexion with the charities of villages near Devizes. At Rowde, one charity bequeathed in 1715 was stated to be disbursed in payments of 8*d.* each to 492 applicants. Mr. Cardew urged the adoption of some different method of distributing the money, such as contributing to a local hospital where the parishioners in need of medical and surgical treatment could receive treatment.

THE PHYSICAL CAUSES OF THE SLIGHTER FORMS OF MENTAL DEFECTS IN CHILDREN.[1]

BY FRANK M. POPE, M.D.

IN 1899 the Elementary Education (Defective and Epileptic Children) Act was passed, entitled, "An Act to make better provision for the Elementary Education of Defective and Epileptic Children in England and Wales." This Act empowers school authorities (1) to ascertain what children in their district not being merely dull or backward and not being imbecile are defective—that is to say, what children by reason of mental or physical defect are incapable of receiving proper benefit from the instruction in public elementary schools, but are not incapable by reason of such defect of receiving benefit from instruction in special schools; and (2) what epileptics are capable of receiving benefit. The State thus did for mentally defective children what it had previously done for the deaf and dumb and the blind.

The duty of deciding as to what children came under the above definition was given to approved medical men, examination by whom was made compulsory, and the school age of such children was raised to 16 years. I was appointed to act in this manner for the Leicester School Board and have in consequence examined a large number of children. After doing this I looked up the literature on the subject, more particularly the work [2] and reports [3] referred to below, and Dr. F. Warner's article in "Allbutt's System of Medicine." [4] In the report of the Committee there is an immense mass of statistics, over 100,000 children of every degree of mental capacity having been examined. The direction the inquiry had taken was mainly that of observing the conditions of the children with regard to bodily development and defects. The former was in many cases found to be imperfect and the latter were frequent, and the conclusion sought to be enforced appeared to be that the physical defects and so-called abnormal nerve signs were on the whole an index of the accompanying mental defect if any. Abnormal nerve signs are the conditions of expression, tone of facial muscles, "position of hands," tremor, "response to action," and others, and the remark is made that observers in this field must depend for any good results on inspection mainly, this being thought to give better results than the appraisement of the mental deficiency by interrogation of the child. The physical defects to which the observers attached most significance were: cranial abnormalities—large heads, small heads, cranial bosses (rickets), defect of forehead, frontal ridges, and head asymmetrical; defective ears (external); palate—high-arched, V-shaped, cleft and others; defective nasal bones; and general debility. The correlation of these two classes of signs is made the criterion of mental defect. I reserve my criticisms on these reports till later, only remarking here (1) that Dr. Warner acknowledges that some dull children have no defect and that some children with these signs are not dull; (2) that there is an underlying assumption throughout the report that these signs are those of degeneration; and (3) that Dr. Warner says that these signs appear to be inherited. Their conclusions appear to be mainly that physical conditions are an index of mental ones, that both should be looked for, and that no risk should be run of neglecting children who exhibit defects. As a practical outcome of the Committee's labours the Act of 1899 was passed. I do not know that one can blame these committees for not having investigated the causes of such defects. If it was the case that they did not examine the children closely, as for cardiac defects and the like, and that they were not supplied with family histories, it is obvious that they were not in a position to undertake the inquiry. Under the Act of 1899 the medical officers have the opportunities which were wanting to these committees. The parents are usually seen and the children can be closely and carefully examined. After making many

[1] Thesis for degree of M.D. in the University of Cambridge.
[2] Shuttleworth: Mentally Deficient Children, second edition (Lewis, 1900).
[3] Report on the Scientific Study of the Mental and Physical Conditions of Childhood (Charity Organisation Society, London, 1895).
[4] Clifford Allbutt: A System of Medicine, vol. viii. (London: Macmillan, 1899).

such examinations it appears to me that it would be possible to inquire more closely into the pathological causes of the mental defects presented by the children with a prospect of arriving at some definite conclusions. I therefore undertook further inquiries into the subject, the results of which I here present.

I have examined about 120 children in the schools of the Leicester School Board. These children were most of them already in the special classes for defective children, having been found, by the teachers in the first place, and by the inspector, a man of great experience—Mr. H. Major, B.Sc. Lond.—in the second, to be unfit for the ordinary school work. All children examined were admittedly defective mentally. Thus by rule of thumb the special class desired had been already weeded out and the medical examination could be directed to ascertaining if any were either mentally so deficient that it was useless to expect any improvement under education, or, on the other hand, if there were any whose defect was not marked enough to prevent their being placed in the ordinary classes. In most cases the mother and the teacher were present at the examination of the child, so that the family history could be inquired into, and cross-examination (which is most necessary) could be practised. When I found that it was possible that some light might be thrown on the etiology of these mental defects by the facts which I had ascertained by leave of the London School Board I obtained access to the reports of about 200 of the defective children in their schools, and the result of this examination is included with my own results. In addition, I made observations on 500 children in the upper fifth, sixth, and seventh standards of the Leicester board schools, with a view of seeing if any of the defects supposed to indicate mental deficiency were present in those presumably the brightest of the scholars. It was my original intention to have excluded what are usually termed imbeciles from my statistics, but I soon found that apart from the difficulty of drawing a hard-and-fast line between these and the simply defective cases it was probable that they differed only in degree from the milder cases, and the causes producing the defective condition were probably alike in all. A certain proportion of the imbeciles and idiots are besides excluded from most of the statistics by the separation of the hereditary from the non-hereditary cases. It seemed probable that some of the causes producing insanity would also operate in those minor defective mental states (of course, excluding causes such as intemperance, &c., acting in the lifetime of the insane person), and of these that heredity would be one of the most important. Maudsley[5] says of the causes of idiocy that many of them operate after birth; they are epilepsy, the acute exanthemata, perhaps syphilis, and certainly starvation, diet, and over-crowding. Shuttleworth gives an excellent *résumé* of the various factors of causation. I need not enumerate them, as I shall take his list as the basis of classification of my own cases (see also Ireland[6]).

Heredity.—In the insanity of adults, in idiocy, and in imbecility there is no doubt that one of the most important causes is heredity. If to those cases having a clear history of insanity in the family we add those having a clear history of epilepsy we get a considerable proportion of cases of mental weakness accounted for. These cases are also in the truest sense of the word hereditary, for we can hardly conceive of the transmitted defect, be it what it may, as anything other than one which is of the essence of the organism, and as being present in the germ or sperm cell, and hence not only as having been transmitted, but as being also transmissible to future offspring. The question of the part played by heredity in insanity has been often fully treated, and I therefore consider myself justified in excluding altogether from the scope of my inquiry, at any rate as far as numbers and conclusions arrived at from numbers are concerned, all cases where a clear family history of insanity or epilepsy in the family can be ascertained. I therefore allow that a percentage of perhaps about 30 of the cases of mental deficiency which are being treated in special classes are due to inherited defect from insane or epileptic parents, and I am only attempting to show the causation of the remainder (perhaps 70 per cent.). I have satisfied myself, as far as the cases which I myself have examined, that I have excluded heredity, but with regard to the London cases I fancy that the family histories were not complete in all instances. As, however, the exclusion of some hereditary cases will tell against and not for my conclusions, such accidental inclusion will really strengthen my arguments.

Development of brain.—I need not enter very fully into the manner in which the brain is developed. After the hind-brain, with its centres for respiration and circulation, is developed, great tracts having for their function the placing of the hemispheres and subjacent great ganglia in communication with the organs of special sense and the tactile sensory system have to be elaborated, and the great motor tracts placing the hemispheres in connexion with the locomotor apparatus have to be formed, and *pari passu* with these growths are built up the cerebellar and other controlling mechanisms. Lastly, in the cerebrum there appears to go on for the greater part of life a linking up of the higher centres, making certain paths easier and possibly, but not so certainly, other paths more difficult, for nervous impulses to traverse. For the proper working of even the very lowest degree of human intelligence a comparatively high development of the central nervous system is necessary. The sense organs must be developed and intact, their sensoria developed and intact, the efferent apparatus for expression, whether lingual or cheiro-kinæsthetic, developed and intact, and the connecting links, if not all completely developed, must at any rate be in a condition allowing of development. By the time a child has reached an educable age it is probable that little difference could be distinguished histologically between the brain of such child and that of a man aged 25 years.[7] It is obvious that in the course of the growth of such a complex organ the possibilities of interference with its proper development are very numerous and that such interference may take place at any time. We are familiar with teratological monstrosities in which the hemispheres are undeveloped, with idiots in whom we can find every variety of arrested development—brains with few convolutions, non-development of optic or auditory tracts, and the rare cases of non-development of the pyramidal tracts. Shuttleworth divides his cases into congenital and non-congenital, and places between these a mixed class which he terms "developmental." This is, of course, a classification of utility only. The defect arising from an injury to the fœtus by the mother falling down stairs is precisely comparable to that due to the child of a few months being dropped, and so is intra-uterine to extra-uterine small-pox. I propose, however, to follow him to some extent and to classify the causes of mental defects into ante-natal, natal, and post-natal causes.

General mental condition of cases examined.—The children whose examination forms the basis of these statistics varied considerably in mental power. Some, as has been stated, were imbeciles, but capable of speech and of some amount of education, and from these the gradation could be traced up to the child who after a few months' training in the defective children's class was able to join normal children of a somewhat younger age. Moral defect was uncommon among them and except in the hereditary cases it was not usual to find them troublesome to their teachers. Perhaps the best way to describe them is to say that before special training they are about equal mentally to children of the age of four or five years. They lack the power of concentration of thought and, as a rule, cannot reckon except in very low numbers. Their imitative powers are weak, hence they seldom write or draw well.

Method of investigating the causes of the mental defects.—A few words are necessary as to the method by which the assigned causes of mental deficiency were ascertained. Two returns on forms prescribed by the Education Department were filled up for each child, one by the teacher of the class in which the child was and the other by a parent and the teacher conjointly. The latter contains statements of age of parents, their mental condition, condition as to temperance, cause of death if not living, ages and states of health of living brothers and sisters, and causes of, and ages at death of, deceased ones; whether insanity, fits, consumption, or scrofula existed in the family; the time when the mental deficiency of child was first observed; the cause to which it is attributed, and other facts. Taking these as a basis, the mother in most cases, the father or other near relative in a few, was seen and questioned, especially as to the time when the deficiency was first observed and the causes assigned for it, and care was taken that at least no cause was put down as probable unless it had preceded

[5] Physiology and Pathology of Mind, 1868.
[6] Mental Affections of Children (London: Churchill, 1898).
[7] Clouston: Neuroses of Development, London, 1891.

in time the observed mental deficiency. The mere fact of such a disease as measles being assigned by a mother as a cause was not thought to justify its inclusion unless it was expressly stated that the child was very seriously ill at the time, or unless the complications or sequelæ of the disease—e.g., long insensibility, aural or ophthalmic trouble—gave some colour to the assertion, and so with other assigned causes. In most cases the mothers were intelligent women, and it is difficult to see whose opinion could be taken in preference to theirs, as a complete medical life-history written by a medical man was impossible to be obtained. The mothers had no pre-existing ideas on the subject, and I think I shall show that in most instances the causes which they assigned had much to do with the arrest of brain development in the children.

Classification of alleged causes.—Ante-natal: hereditary brain disease or epilepsy, defects of ovum (syphilis?), parental intemperance, age of mother, twin pregnancy, and intra-uterine accidents (injury to mother, fright to mother, intra-uterine diseases). Natal: Causes acting at time of birth—premature birth, lingering labour, and ophthalmia. Post-natal: accidents—injury to brain, injury to organs of special sense, and injury to body generally. Diseases of brain, &c.: meningitis, hydrocephalus, epilepsy, convulsions, chorea, and hæmorrhage (apoplexy). Maldevelopment in some definite area—e.g., Broca's. Disease of the spinal cord: Friedreich's disease. Diseases of special senses: the eye, the ear, the nose and pharynx, and the nose and adenoids. Bacterial diseases: whooping-cough, measles, scarlet fever, typhoid fever, diphtheria, and fever. Diseases of the lungs: bronchitis, pleurisy, and pneumonia. Diseases of the heart and of the kidneys. General diseases: rickets, cretinism, tubercle, rheumatism, debility, want of appetite, &c., diseases of skin, eczema, &c. This is a very long list, and it covers most of the diseases of children that are known to medicine. I hope to show, however, that most cases are not due to the operation of one cause alone, with the exception of some of those due to hereditary brain disease and the obvious ones of accident or acute brain disease, such as hydrocephalus.

Hereditary cases.—After excluding some children who were not defective, and three or four in whose cases the cause was severe injury to the head in childhood, there remain for the purposes of my statistics **104** cases. Of these, **28**, or **26·9** per cent., had relatives who were either insane or epileptic. These were grouped as follows: epilepsy in family, eight; insanity, **10**; imbeciles and idiots, four; intemperate parents, three; and syphilis, one. The last two items require explanation. The parental intemperance was very marked in these cases, and it was almost certain that the parents were mentally of a very low type. Syphilis was placed here because it is so clearly an hereditary disease, and it is obvious that the age of the mother could exercise no effect on its transmission.

Reasons for believing the causes probable.—With regard to the second group of cases, where hereditary brain disease was not shown to exist, **76**, or **73·1** per cent., of my cases were carefully examined, and I satisfied myself as far as possible that the causes given by the mothers as probable did correspond fairly well in the time of their occurrence with the time when mental deficiency was first noticed. With regard to the **151** cases in the London board schools of which I have copied the notes I am not in a position to say as much; I have therefore not included these with my own cases, but have quoted them separately. The close agreement in the percentages of the two series is remarkable, and it strengthens the probability that the causes given are true and not merely apparent. (No hereditary cases are included in the London series.)

AGE OF MOTHER.

Before directing attention to Table I. on which I have tabulated the different causes, giving my own results in the first column and those from the London School Board in the second, I must explain that I leave for subsequent discussion what I have reason to consider the most important and frequent cause of all—namely, an advanced age of the mother at the birth of the child. I mention it here because this cause must act on the ovum from its earliest age—that is if we leave out such questions as that of prolonged labour and lacteal supply, and therefore it should be grouped with the ante-natal causes. To consider the other causes *seriatim*.

ANTE-NATAL CAUSES.

Syphilis.—I only found undoubted hereditary syphilis in one case. This is rather surprising, but it is borne out by the fact that only one of the London cases was assigned to this cause. Hutchinson has noted the same fact among patients at Earlswood.[1]

Parental intemperance. (No evidence of hereditary brain disease.)—This is a very difficult subject on which to express an opinion. I have already given reasons for including among hereditary cases the four cases from Leicester in which this cause was assigned. If these reasons are admitted as valid there remains no case in which it is probable that this was the only cause of the child's condition. Among the London cases two only have this as the sole assigned cause, though it appears in other cases in a

TABLE I.—*Schedule of Causes.*

——	Of my own 76 cases.	Of 151 London cases.
Ante-natal causes—		
Syphilis	1	1
Parental intemperance (no evidence of hereditary brain disease)	4	2?
Twin pregnancy	1	1
Injury to the mother before the birth of the child	—	4
Fright to the mother before the birth of the child	2	2
Intra-uterine diseases (congenital cataract)	2	1
Natal—		
Premature birth	1	1
Lingering labour	—	2
Post-natal—		
Injury to brain	2	2
,, organs of special sense	—	1
,, body generally	—	2
Diseases of the brain—		
Meningitis or "inflammation"	—	3
Hydrocephalus	3	1
Epilepsy	9	8
Convulsions	6	10
Chorea	3	3
Hæmorrhage (apoplexy)	4	4
Defect of the speech area (cause ?)	2	—
Diseases of the spinal cord—		
Friedreich's disease	—	1
Diseases of the organs of special sense—		
Eye (blind cases excluded)	4	3
Ear (deaf cases excluded)	7	2
Nose and pharynx (adenoid growths)	—	2
General diseases.		
Bacterial—		
Measles	16	21
Scarlet fever	6	12
Fever (?)	2	—
Typhoid	—	3
Diphtheria	3	1
Whooping-cough	Several.	11
Of the lungs—		
Bronchitis	6	10
Pleurisy	—	—
Pneumonia	2	3
Of the heart	4	6
Of the kidney	1	—
Rickets	1	7
Cretinism	—	1
Tubercle	4	8
Rheumatism*	—	—
Skin disease—		
Eczema	—	2
Debility, want of a petite, &c.	8	9

* See Chorea and Heart Disease.

[1] Clifford Allbutt: A System of Medicine, vol. viii., p. 235.

different form, a not unusual combination being "intemperance of father, and his brutality to mother during pregnancy."

Twin birth.—In one instance in Leicester and in one in London this cause was assigned. Twins are frequently small and ill-nourished.

Injury to mother during pregnancy.—This is not stated in any of my cases. Four of the London cases are stated to have this cause. It is well known that abortion may be caused, or the placenta be partially or wholly detached, by injury causing death or serious malnutrition of the fœtus, and one can easily see the method by which this cause might obstruct brain development.

Fright to mother.—Of the Leicester cases two were assigned to this cause, as were also two of the London cases. In one of my cases the father was insane; in the other the child had also had an injury to the head at the age of three and a half years. This cause is so mixed up with the much debated subject of maternal impressions that I have great doubt of its validity, unless there has been actual physical injury at the same time.

NATAL CAUSES ARISING AT THE TIME OF BIRTH.

Premature birth.—This accounts for one case in Leicester and one in London. My case was evidently that of a very feeble child, for she did not walk or talk till the age of five years; she is deaf and speaks badly, but is not imbecile and profits by instruction. The arrest of cerebral development from this cause is easy to understand.

Lingering labour.—This was given as the cause of two London cases. Direct injury to the brain, rupture of vessels, and hæmorrhage, meningeal or otherwise, would probably be produced. Cyanosis, if recovered from, would probably not cause arrest of brain development. But stoppage of circulation might cause very serious lesions in nerve tissue.[9]

POST-NATAL CAUSES.

Injury to the brain.—Of this condition there were two cases among those from Leicester and two among the London cases. These require no remark, nor do those due to serious injury to the eyes or the body generally. Immersion in water, causing shock and subsequent pneumonia, is given in one of the London cases.

DISEASES OF THE BRAIN.

Inflammation of the brain.—This was alleged as to three London cases. It was impossible to inquire into them, but of course meningitis would naturally interfere with subsequent development.

Hydrocephalus.—I observed this in three cases. The heads were very large. The process appeared to have been arrested in all. It is impossible to say what the condition was due to. Probably to posterior basic meningitis. Tuberculous would not have been likely to be recovered from. There was one case from this cause among those from London.

Epilepsy.—There were nine Leicester cases and eight London cases. This cause is so well recognised that I need not say much about it. It must be remembered that the above small numbers only apply to the cases where heredity was not present or could not be proved, and that there were many other epileptics. The extent to which the mental capacity was affected by this disease varies much; some who only had an occasional fit were bright and learned well, while others who had frequent attacks were very dull.

Convulsions in infancy.—This was asserted to be the cause in six of my cases and in 10 of the London cases, or 7·9 and 6·9 per cent. respectively. The coincidence in the numbers is remarkable and shows, I think, that this is a real cause. I do not suppose that the causes of the convulsions are always identical. Some, no doubt, came on in the course of acute diseases or teething, while others might be true epilepsy now in abeyance and likely to appear again. The children in whom this cause only was alleged were, as a rule, not badly deficient mentally.

Chorea.—I have included this under brain disease as it is almost certain that the incidence of the toxin or bacillus, whichever it may prove to be, is mainly on the cerebral cortex, and this being so it is not surprising that its occurrence during the developmental period should cause mental defect, at all events for a time. Three of my cases and three of the London cases were due to it. An interesting question arises here as to whether some of the cases termed developmental and due to this cause among others may not really be true psychoses. I have recently seen a case of well-marked melancholia following an acute attack of chorea and another of chronic mania or dementia, and I shall later relate the case of a patient (Case 7) and give reasons for thinking that his deficiency may be due to dementia coming on at the age of five years after chorea.

Hæmorrhage into the brain or its membranes.—This is a rather frequent cause of mental deficiency. I found it in four of my cases and it was present in four of the London cases. Late contracture made cripples of these subjects. The mental defect was not severe in most of them. Whooping-cough was the cause of the hæmorrhage in one case. In two cases the children were the offspring of elderly mothers of the ages of 43 years and 41 years respectively at the time of the birth of the children. In all these cases there had been a distinct seizure or fit.

Defect of speech-area of the brain.—In Leicester there were two cases. I expect that these were really from the same cause as the last group, but I have no history of a distinct fit or seizure. The speech was very imperfect in both cases and there was impaired power of movement of the tongue in one case and of the lips in another. In neither was there anything like aphasia.

With regard to diseases of the spinal cord there was one case of Friedreich's disease and that was a London case.

The following are the returns of the diseases of the organs of special sense. From Leicester there were four eye cases and seven ear cases, and from London there were three of the former character and two of the latter, as well as two cases of disease of the pharynx and nose (adenoids). These are obvious causes of backwardness and perhaps of arrest of brain development in children. They do not call for much discussion. Many of the ear cases appear again under the headings of measles and scarlet fever. Blind and deaf cases are excluded, being all in special schools. The reason for the absence of cases with adenoids from the Leicester returns is special. The vice-chairman of the school board is Dr. F. W. Bennett, aural surgeon to the Leicester Infirmary, and he has taken great pains to have all such cases treated, with the best possible results. No doubt many more cases of backwardness from this cause existed before attention was so much directed to this condition.

GENERAL DISEASES.

This group corresponds to some extent to Dr. G. E. Shuttleworth's post-febrile group, but only partially. He, dealing with the more severe cases of idiocy and imbecility, has in his mind the cases where, as a result of the poison of one of the exanthemata, sclerosis with atrophy, or thickened and adherent membranes, following meningeal inflammations, were produced. I have no doubt that in some of my worst cases this may have occurred. In others, however, I consider that the brain has been affected along with, and in proportion to, the rest of the body, and that as a rule in this group of cases the cause assigned has been a secondary one, the primary or rather predisposing cause being the original weakness of the organism as a whole, due to pre-natal causes, especially to birth from an old and exhausted ovary.

Measles.—This disease appears more frequently than any other. There were 16 cases from Leicester and 21 from London. In several of the cases—one in four out of those from Leicester—there was some deafness due to middle-ear suppuration, but in others, though there was sometimes a discharge from the ear, there was no actual impairment of hearing. So common a disease as measles cannot be credited with being the sole cause, but along with the other exanthemata it is, I believe, a secondary cause in many instances. In several cases where there has been hereditary mental weakness imbecility appears to have followed an attack of measles.

Scarlet fever.—Of cases from Leicester there were six, and of London cases there were 12. Much the same remarks as those on measles apply to scarlet fever.

Of *fever* (indefined) there were two cases, both being from Leicester; while of *typhoid fever* there were three cases, all of which were from London.

Diphtheria.—From Leicester there were three cases, and from London there was one case. Apparently diphtheria is not a frequent cause. There has been much diphtheria in Leicester during the last few years.

Whooping-cough.—There were several cases of whooping-cough among those from Leicester, and they were generally in conjunction with measles or lung affection. From London

[9] Experiments on Spinal Cords by Ehrlich and Brieger (Pierre Marie: Diseases of the Spinal Cord, New Sydenham Society's Translations, 1895, p. 401).

there were 11 cases. I have mentioned this complaint as leading to cerebral hæmorrhage in one case.

Bronchitis.—The Leicester cases were six in number and those from London numbered 10. As far as I can ascertain, the bronchitis which is credited with producing mental defect is the rather dry, chronic, inherited form. The repeated attacks seem to interfere with cardiac action and circulation, as well as with proper blood aeration. It must not be forgotten, however, that such a complaint interferes very much with proper school attendance, and hence backwardness results, intensifying the effects of any cerebral maldevelopment.

There were two cases of *pneumonia* from Leicester and three from London.

Heart disease.—Leicester, four cases; London, six cases. In a few cases the condition was congenital; in others it was due to rheumatism.

Kidney disease.—There was one case of chronic nephritis after scarlet fever.

Rickets.—Leicester, one case; London, seven cases. I expected to find this a much more constant cause, and, indeed, in a few cases besides the one enumerated the skull was bossed, but I could not satisfy myself that there was any enlargement of the ends of the long bones or of the ribs. Also rickets is not a common disease in Leicester. The milk-supply is good and cheap and overcrowding in houses is uncommon.

Cretinism.—I do not know why none of the Leicester children and only one of those from London were cretins. There must be some that have escaped the school board net. The condition needs no remark, its effect on the brain being so well known.

Tubercle.—Leicester, four cases; London, eight cases. In some of its numerous forms tuberculous disease is responsible for a good many defective children. It must be remembered that many of the sufferers from tubercle are much too ill for any question of school attendance to arise. The cases which I have seen are mostly those of old bone disease.

Rheumatism.—When this is a cause it is usually through its secondary results of cardiac disease or chorea, which have been discussed.

Skin diseases.—There were two cases of eczema among the London cases. Probably this caused backwardness from the children being prevented from attending school; sometimes these cases are coincident with bronchitis.

Debility, want of appetite, &c.—Some of these cases have been included under other heads, but there appears to be a certain proportion of children who are extremely weak and who resemble the prematurely born. Some of these may possibly be tuberculous cases. Inability to eat breakfast is alleged about many of these.

TUBERCULOUS FAMILY HISTORY.

In addition to those diseases from which the children have suffered or are actually suffering there is the question of those cases noticed by Shuttleworth and others where there exists a history of tubercle in the family. In children of such families there is a want of resistance to the invasion of the tubercle bacillus and often to that of other micro-organisms, the germ of the exanthemata particularly. Such a hereditary condition as this has many points of similarity with that which I am about to describe and which I consider to be the most frequent predisposing condition of all—namely, the age of the mother at the birth of the child. Many of these causes will be found to coincide closely with those of idiocy given by Fletcher Beach and Shuttleworth,[10] and one observation of theirs is worth notice. They say: "Experience teaches that it is rarely scientific to assign one specific cause to a particular case. When it is possible thoroughly to investigate the history many contributing factors may be usually discovered." The age of the mother at the birth of the child is not noticed as a contributing factor.

Age of the mother.—As the forms relating to the family history of the defective children state the ages of the father and mother, the age of the latter at the birth of the child is known. I was struck by the fact that the age of the mother appeared to be excessive in many cases. I then tried to ascertain the average age of the child-bearing woman. This I found to be very difficult. The Registrar-General's returns do not give the ages of mothers at the birth of their children. Statistics exist of the ages of women at the time of delivery from many lying-in institutions in various parts of the world, and these show that a very great majority of the patients in those hospitals were under the age of 30 years at the time of delivery. There are, however, many objections to accepting these statistics as representing the state of matters with regard to the general population. Many of the births in lying-in hospitals are those of illegitimate children, and many others are cases in which women have contracted early and imprudent marriages, and the proportion of primiparæ to multiparæ is very high. The result is that in these institutions more children are born to women under 30 years of age than is the case throughout the entire population. I found, however, some facts reported by Dr. Matthews Duncan,[11] which were taken from a population resembling in many particulars those of Leicester and London, whence my statistics were derived. The ages of mothers at the time of delivery were stated in the Registrar's returns from the cities of Edinburgh and Glasgow between the years 1850 and 1860. I have taken these for comparison. I give shortly Dr. Duncan's remarks on these statistics:—(1) that the actual, not the relative, fertility of our female population as a whole at different ages increases from the commencement of the child-bearing period of life until the age of 30 years is reached and then declines to its extinction with the child-bearing faculty; (2) that the actual fertility is much greater before the climax, 30 years, is reached than after it is passed; and (3) that at least three-fifths of the population are recruited from women not exceeding 30 years of age. Dr. Duncan gives his figures distributed in quinquennial periods and I have tabulated my own cases in the same manner (Table II.). Taking all my cases where heredity has been excluded, instead of two-thirds of the children being born when their mothers were under the age of 30 years I find in the Leicester cases that the proportions have been very nearly reversed and that almost two-thirds were born to mothers over 30 years of age, and that 40 per cent. were born to mothers over 35 years of age instead of 20 per cent. as in the normal population, or exactly double. As justifying the exclusion of the hereditary cases these latter approach the normal very closely. The above has reference to the cases observed by myself. The London cases (151), where the facts were ascertained by independent observers, show the point almost as strongly. 40 per cent. are the children of mothers under the age of 30 years and 60 per cent. those of mothers over that age. I believe that if inquiries as to heredity had been pushed further the proportions would have been the same as in the Leicester cases. One difference between the London statistics and those of Leicester is that there are more cases at the ages of from 30 to 34 years and fewer at those from 40 to 44 years. This, I think, may be due to the fact that the London women inhabiting Southwark and Clerkenwell, the districts in which the children lived, undoubtedly "age" more rapidly than do women in a comparatively healthy provincial town like Leicester. I do not believe that such facts with regard to 227 admittedly defective children can be accidental, and there are several further reasons for thinking that advanced age in the mother has an important bearing on the health of her offspring.

TABLE II.—*Showing the Relative Ages of Mothers of Normal and Backward Children.*

—	Under 25 years.	25–29 years.	30–34 years.	35–39 years.	40–44 years.	Over 45 years.	Total.
Normal. Edinburgh and Glasgow, 16,301 cases							
Per cent.	24·92	30·89	23·61	14·76	5·15	0·61	100
Leicester, not hereditary—No. of cases...	14	14	18	13	14	3	76
Per cent.	18·4	18·4	23·7	17·1	18·4	4·0	100
Leicester, hereditary—No. of cases... ...	8	8	5	3	3	0	27
Per cent.	29·6	29·6	18·6	11·1	11·1	0	100
London, not hereditary—No. of cases...	26	40	47	24	11	3	151
Per cent.	17·2	26·4	31·1	16·0	7·3	2·0	100

Other facts bearing on the importance of the age of the mother.—This is not altogether a new observation. Not to

[10] Clifford Allbutt: A System of Medicine, vol. viii.

[11] Fecundity, Fertility, and Sterility (Edinburgh, 1871).

go so far back as "Little Benjamin," the youngest of a family of 12, or to Aristotle who remarks that the young of very old parents are deficient in body and mind, we find a recognition of the fact in provincial speech: there is a dialect word used in Leicestershire and other counties to denote the smallest animal in a litter, and also the youngest weakly child of a family—*dilling*, often pronounced *dillon*.[12] Dr. A. M. Mitchell[13] quotes a series of 85 idiots and finds that while many of them were children of first pregnancies a much greater number were the children of the eighth, ninth, and subsequent pregnancies than would have been the case in the same number of children with normal brains; also that nearly 25 per cent. were born of mothers between the ages of 40 and 44 years, instead of 5·15 per cent. which would be normal. Shuttleworth[14] in discussing the Mongol or Kalmuck type of idiot remarks that almost half of the representatives of this type are the last born of a long family. Of course, this implies considerable age in the mother. My observations confirm these remarks, but though it is common to find that the defective child is the last of a large family the family is not always large nor is the child always the last one. Taking 18 children whose mothers were over 35 years of age at their birth at haphazard I find the size of the families to be eight, five, three, 10, 10, five, seven, five, four, seven, six, six, seven, 12, 15, 10, 11, and eight, six of the families being over 10 in number and 12 being less than that number. All these children except two were the youngest of their families. With regard to one or two general diseases the same cause has been referred to. Dr. A. Carroll and Dr. C. Morley Phillips,[15] treating of the causes of rickets, state that it is a recognised fact that a mother advanced in life, even though she has not had numerous previous confinements, is more apt to produce rickety children than is a younger woman. One point more should be considered. It may properly be argued, How do you explain the fact that there are so many cases in children of mothers under 25 years of age? In answer I must first state my general conclusion. It is that the above statistics appear to show that the most frequent causes of defective mental states in children who have no family history of hereditary brain disease are (1), as a predisposing cause, birth from a comparatively aged mother, and (2), as an exciting cause, some acute illness, most frequently one or more of the exanthemata, to which infections children of elderly mothers appear to be particularly liable.

Analysis of causes in children of younger mothers.—I am now in a position to discuss the reason why so many of these children are born of younger mothers. It is clear that certain post-natal causes are sufficient to cause mental deficiency in any child, healthy or otherwise, and my main contention is that the age of the mother produces in children the liability to be affected by causes which would not produce mental deficiency in healthier ones. (Tables III. and IV.) On the examination of the causes given as to children of mothers under 25 years of age we find that acute post-natal diseases are only alleged in five cases out of 13, while in those of mothers over 40 years of age we find acute post-natal diseases accounting for 12 cases out of 17. I think this very suggestive of the truth of my conclusion. In the London cases this is more marked, for acute exanthemata are a cause in the children of mothers under 25 years of age in only 15·14 per cent., while in those of mothers over the age of 35 years they are so in 45·1 per cent. Thus we find that when we are dealing with the children of younger mothers the causes of their mental defect are most frequently such as twin birth, premature birth, inflammation of the brain, accident to the mother, injury to the head, and cretinism—all causes which do not require a predisposing weakness of the child in order to produce mental deficiency; while in those of older mothers, these causes not being absent, we find in addition a large proportion in which the mental deficiency has been produced by such causes as acute post-natal diseases, which when attacking the stronger children of younger mothers have no such effects on the brain. It is to be regretted that the London School Board have recently omitted from their family history forms the ages of the fathers and mothers of the children, the importance of the age of the latter having evidently not been brought prominently before them. I now append a few typical cases.

[12] Skeat: English Dialect Dictionary.
[13] Edinburgh Medical Journal, January, 1886.
[14] Mentally Deficient Children, second edition.
[15] Brit. Med. Jour., Sept. 21st, 1895.

TABLE III.—*Causes of Mental Defect in the Children of Mothers under 25 Years of Age.*

LEICESTER (13).

Fever (?)	2	Croup	1
Unknown	1	Defective speech area	1
Parental intemperance	1	Pneumonia	1
Epilepsy	3	Diphtheria	1
Premature birth	1	Imbecile	1

LONDON (25).

Age of father (?)	1	Bronchitis	3
Chorea	1	Injury to head	1
Unknown	4	Convulsions	1
Inflammation of brain	3	Operation	1
Accident to mother	1	Congenital cataract	1
Pneumonia	1	Heart disease	1
,, and shock	1	Cretin	1
Debility	1	Syphilis	1
Tubercle	1	Twins	1
Premature birth	1		

TABLE IV.—*Causes of Mental Defect in Children of Mothers over 40 Years of Age at Birth (18).*

LEICESTER.

Epilepsy	1	Spastic paraplegia	1
Imbecile	2	Measles	4
Unknown	2	Bronchitis	3
Rickets	1	Scarlet fever	2
Whooping cough and cerebral hæmorrhage	1	Cataract	1

CASE 1. *Birth from a mother advanced in years; measles; abscess of the ears.*—The age of this child was nine years and nine months, and he was the youngest of eight children. His mother was aged 38 years at his birth, the father being of the same age. The boy's head was small and his expression was stupid. The palate was normal, the teeth were fair, the lobes of the ears were adherent, and the features were rather coarse. There was some corrugation of the forehead and the head was held rather on one side. The hands were normal in shape and the position when they were extended was normal. There was a good deal of twitching of the body when the boy was standing still. He had had measles severely in infancy, followed by abscess of the ears. He commenced to walk at the age of two years and to talk half a year later. In measurement he was two inches below the normal and he was two pounds under the normal weight. He could name objects well and he knew the day of the week. He could read a few short words, could write down badly words of three letters from dictation, could do a very simple addition sum but no subtraction, and was now (but only lately) fairly quick at manual work. His attention wandered very much and his memory was bad. He could not be trusted to perform an errand correctly. He was improving under special treatment, which he had been undergoing for a year. This is a typical case.

CASE 2. *The mother of advanced age; rickets; measles.*—In this case the child was of the age of seven and a half years and she was the sixth child, there being an interval of 11 years between the next oldest and herself. At the time of her birth her mother was 41 years of age and her father was of the same age. Her head measured 20 inches and there were frontal and occipital bosses. The palate was normal, the teeth were bad, and the lobes of the ears were adherent, but the features were fairly good. She weighed four pounds less and measured two inches less than the normal. Her face twitched slightly, but the pose of the head was normal. The hands were normal in shape but the fingers were over-extended. The body was normal and she was cleanly in her habits. She had suffered severely from rickets, she walked badly, and she had had bronchitis and measles. She talked at one and a half years and walked at three years of age. Her powers of observation were weak, but she could name objects, and she knew the day of the week, could read words of three and four letters, and could write words of three letters from dictation. She had no idea of numbers. She had improved under special training for one year, but still she had no idea of numbers. This was not such a severe case as the previous one.

CASE 3. *Delicate; bad eyesight.*—This child was eight years of age and was the twelfth or thirteenth of a family of 16 children. When she was born her mother was 35

years of age and her father was the of same age. Her head measured 17 inches. Her expression was vacant, the palate had rather a high arch but was not narrow, the teeth were fair, the ears were badly shaped and rather pointed, and the features were coarse. She was five inches in measurement and 19 pounds in weight below the normal standard. She had small thin hands which presented a drooping position when extended. In her habits she was cleanly but she was always cold and had never been well. Her eyesight was bad and she was slow in her movements. She walked and talked at the age of two years. She imitated movements slowly, read fairly, wrote very badly, and could only calculate up to four, but she could do manual work. Her health was very defective and her sight had also prevented the development of intelligence.

CASE 4. *The youngest of 16 children; bronchitis.*—This child, who was seven and a half years of age, was one of 16 children, most of whom had died in infancy, several from bronchitis. The mother was 41 years of age at the time of the birth of this child and the father was one year older. The head was normal, measuring 19½ inches. The expression was bright, the palate was normal, the teeth were good, the ears were normal, and the features were good. In height she was two inches above and in weight two pounds below the normal. The head was held on one side. The hands were normal in shape and pose. There was some twitching of the body. Her habits were cleanly. She had suffered much from bronchitis. The father had chronic bronchitis and he had had dry eczema. She looked a bright girl, but was not too strong in the moral sense. She could only read, write, and count in the most rudimentary way but she could do manual work fairly well. This child would have quite escaped all notice on Dr. Warner's plan of examination. Not any of his developmental or nervous signs were present, yet she was very defective.

CASE 5. *The mother of advanced age; bronchitis.*—The age of this child was seven years. At the birth of the child the mother was 42 years of age and the father was of the same age. The head measured 19½ inches, the expression was bright, the palate was normal, and the teeth were fair, but the ears were not of good shape. In height the child was four inches and in weight nine pounds less than normal—a very small, delicate-looking child. Severe attacks of bronchitis had been experienced. The child's habits were cleanly. Objects were named with difficulty and the day of the week could not be told. The child could only read words of two letters, could hardly write anything, and counting was very deficient, but the moral sense was good.

CASE 6. *The mother advanced in years; chorea.*—This child, the ninth of 11 children, was of the age of seven and a half years. The two children who were younger than himself had died from tubercle of the abdomen (?). The mother was 37 years of age at the birth of the child and the father was 39 years of age. The boy's expression was dull, the palate had rather a high arch but was not narrow, the teeth were fair, the ears were coarse and they stood out, and the nose was broad. The height and weight of the child were normal. The head was held on one side, the hands were badly formed, and there was weakness in the pose as well as restlessness. He had had chorea three times. The memory was fair and he could read short words, count a little, and do manual work. He was a very nervous child, but his condition was better than was that of the other children whose cases I have reported and he ought to do well.

The last case is one to which I have already referred as being probably psychosis and not entirely a case of arrest of cerebral development.

CASE 7. This boy, when I first saw him six months ago, was 11½ years of age. His head, which was narrow, measured 20½ inches. At his birth his mother was 45 years of age and his father's age was 48 years. He had a sullen and dull expression. The palate was normal, the teeth were good, the ears were normal, but the features were rather coarse. In height he was one and a half inches and in weight five pounds under the normal. He squinted slightly. The head was fixed and the hands were weak in pose. He had had measles and scarlet fever at the age of four years, followed by left hemichorea, which had existed ever since more or less till recently. Two years previously he was pronounced to be an idiot by the medical attendant of the family. I certified him to be an imbecile. He could not name objects, could not read any letters or write, would not answer a simple question, and was reported to lie, to steal, and to be uncleanly in his habits, and also to wander about the streets and to lose himself. Now he certainly is not an imbecile; he can be entrusted to carry out an errand, can name objects well, can answer questions, does not wander about or steal, and is cleanly in his habits. Such improvement, morally as well as mentally, indicates to me that this was a case of dementia following chorea. I have lately met with two similar cases—one of typical melancholia and the other of chronic mania or dementia—following the same primary disease. In this case I have no doubt the weakness of constitution derived from the excessive age of the mother predisposed to the mental affection.

To sum up, the most careful observers divide the causes of mental weakness into pre-natal, natal, and post-natal. With regard to the two latter groups my cases fall in with those given by other observers, notably Beach and Shuttleworth.[16] They, however, are evidently much impressed with the fact that in most cases there is a congenital weakness of constitution which, when acted upon by post-natal causes, induces the maldevelopment of the brain. Even in their more serious cases of idiocy and imbecility, however, they are only able to point to somewhere about 40 per cent. in which there was a family history which would account for such defect. I claim that the excessive age of the mother will account for such congenital, though not hereditary, influence in from 60 to 70 per cent. of the remainder.

Dr. Warner has so kindly placed all the information which he possesses at my disposal that I feel very reluctant to call his conclusions in question. There are, however, one or two points in which my results differ from his and which I should like to indicate. In the first place, as I have already stated, all the observations on the 100,000 children in the report[17] are based on the assumption that it was impossible to ascertain facts as to family history and that it was also impossible to make physical examinations of the children. Under the new Act these are now both possible. Next, the statement is made: "It is in the co-relation of abnormalities in the proportion of parts of the body, with abnormal nerve signs, low nutrition, and mental dulness that we find a criterion of the really defective status connected with the abnormality and the value of such signs."[18] I am not sure that I understand this, but I take it to mean that there is some defect in the brain in these cases that we cannot detect by taking the ordinary methods of ascertaining the child's mental faculties. To this I cannot assent. It appears to me that we can ascertain the state of development of a child's brain at least as well by asking such child to name objects or by testing the memory, &c., as by looking at the cranium, palate, hands, &c., and co-relating any malformation of these with corrugated superciliary muscles, open mouth, or twitching fingers. I do not wish to say that the results of the examination of so many children are useless; no such accumulation of facts can fail to be useful at some time or another to someone, but when Dr. Warner[19] states that "by the analysis and study of such observations we are enabled to determine the causation and the treatment of mental diseases" I think he goes beyond his facts. What are the signs on which he relies?[20] The first is that of the defects in development of the body and its parts in size, form, or proportion, "such signs appear to indicate inborn and fixed constitutional tendencies." This is the doctrine of stigmata, and I take leave to say that it is wholly unproven. No one will deny that a child with a very imperfect brain may happen at the same time to have an imperfectly developed body and may even be *likely* to have this, but I do deny that bodily imperfections are, as a rule, an index of brain development. Phrenology we have discarded. We have Socrates to quote, or rather Plato, against the theory that the face is an index of the mind, and I will now state a few facts with regard to two of the supposed defects.

The cranium.—The measurement of the cranium is proverbially difficult. The direction given by the committee[21] is that heads less than 19 inches in circumference after three years of age are to be considered small. I venture to think that a careful inspection of any hatter's stock would show that hard-and-fast lines of this sort are of little value.

The ear.—This, if large and outstanding, or with imperfect helix, is supposed to indicate defect. This is a favourite

[16] Clifford Allbutt: A System of Medicine, vol. viii.
[17] Report on the Scientific Study of the Mental and Physical Conditions of Childhood (Charity Organisation Society, 1898).
[18] Ibid., p. 14.
[19] Clifford Allbutt: A System of Medicine, vol. viii., p. 198.
[20] Ibid., p. 199.
[21] Ibid., p. 20.

subject with a class of writers who resemble those on palmistry, and a work has been written entirely on this subject.[22] The reviewer of this work in *Nature*, Dr. Keith,[23] relates how he himself had examined 40,000 ears of dwellers on both sides of the German Ocean in an endeavour to discover if any traces of affinity of race could be found by this means. His results were negative, but he affirms that he convinced himself that every form of ear may be found in persons of every grade of life and standard of intelligence, and that what has been described with confidence as the "criminal ear" is the normal form for inhabitants of these islands.

The palate.—The shape of the palate has great prominence given to it, and I have consequently made a good many observations with regard to it. The committee state that it has a high pathological co-relation. I found in 80 cases of mental defect that the palate had a high arch in 34, it was doubtfully high in eight, and was normal in 38. This does not seem a high percentage, and in the seven cases which I report fully, which were selected on quite other grounds and in which I had not specially noticed the condition of the palate, I found five to be normal, one doubtful, and one high. A diagnostic sign which misses five out of seven is not worth much.

I thought it worth while, having the opportunity, to ascertain if this sign and that of nervous pose of the hands were absent from children admittedly not defective, at all events as to their capacity for learning, and I therefore examined 500 children in the fifth, sixth, and seventh standards in the Leicester schools. I found in some of the higher standards examples of the most deformed palates, high-arch, V-shaped, and asymmetrical; and the totals worked out: examined 500, with high-arched palate 135, with hands of weak balance 126. Thus showing that half as many in proportion of the brightest children had high palates as the defective ones.

Nerve-signs, so-called, form the second of Dr. Warner's signs. These undoubtedly in many cases are an indication of irregular discharge of muscular impulses, and as such deserve attention; but many of these, especially the twitching of the face and hands, are really chorea and depend on a definite pathological condition of the cortex, while others are secondary to injuries of the brain or cord (athetosis in birth palsies).

The third sign on which Dr. Warner relies is that of low nutrition. This has in some cases a connexion with the mental enfeeblement. Dr. Warner says:[24] "It is among the children with defects in bodily development that we find the largest proportion of the pale, thin, delicate children whose tissue delicacy is connected in causation with the defective symmetry of features and parts of body." I have already explained that I consider most of the cases of extreme delicacy to arise in the children of old mothers who have been attacked by acute diseases, and this condition is not hereditary in any other sense than that it is partly congenital. I must state here, as I have done previously, that Dr. Warner himself allows that there is a small class of dull children who do not show defect, and that a considerable portion of children showing defects are not mentally dull. I therefore think that while undoubtedly those children with arrested brain development have more frequently than healthy ones signs of abnormal development in other organs, yet these signs are not so much more frequent in them as to give us much help in the diagnosis of the condition, which, moreover, can be readily ascertained by other methods.

CONCLUSIONS.

If the theory that a very large percentage of those cases can be accounted for by pathological or accidental causes acting on congenital weakness not of an hereditary character is true, does it afford any ground for believing that such conditions are likely either to increase or to decrease? The hereditary cases will no doubt for a long time continue about the same. State regulation of marriage is almost the only measure that could control them, and that appears as yet to be far distant. The law of reversion to type and intermarriage with healthy stock will no doubt prevent their increasing to any great extent, even if they do not diminish. With regard to the children of elderly women I think that some good may be done if it is freely recognised that women who bear more than a moderate number of children run the risk of bringing weakly ones into the world, that the same remark applies to women much over 30 years of age, and that if such children are born they require additional care, and in particular protection from the germs of infectious diseases.

Leicester.

[22] The Human Ear: Its Identification and Physiognomy.
[23] Nature, vol. lxiii., p. 392.
[24] Ibid., p. 199.

THE TREATMENT OF GLAUCOMA BY EXCISION OF THE SUPERIOR CERVICAL GANGLION OF THE SYMPATHETIC.[1]

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AT the present time, when the advisability of removing the superior cervical ganglion of the sympathetic for glaucoma is under consideration, the following case is of great interest.

A man, aged 23 years, was admitted into the Leeds General Infirmary under my care on Oct. 28th, 1899, for injury to the left eye sustained by the bursting of a soda-water bottle. There was a small lacerated wound at the corneo-scleral junction, into which the base of the iris was prolapsed. The patient was warned of the possibility of sympathetic trouble, but went home as soon as the wound healed and was not seen again until March 31st, 1900. He then returned with intense irido-cyclitis in the left eye and in the right eye marked sympathetic iritis, which had set in three weeks previously to his second admission. The left eye was excised, the sight being quite lost, and under atropine, leeches to the temple, &c., the right eye rapidly improved, the pupil dilated, and the iritis subsided. He went out on May 12th, when the eye was quiet and vision was $\frac{6}{9}$. On August 11th the man returned, vision having rapidly failed within the previous three weeks. There was then considerable ciliary congestion, the anterior chamber was shallow, the pupil was fixed, and the iris was swollen and acutely inflamed. Tension was + 3 and the vision was reduced to ability to count fingers at six inches. Paracentesis of the anterior chamber was performed without giving relief, and three days later iridectomy was attempted but could not be satisfactorily performed, the iris being found to be firmly adherent to the lens throughout its entire breadth. Tension remaining + 3 paracentesis was performed on the 29th and on Sept. 20th, and iridectomy was again attempted on the 29th. On Oct. 3rd sclerotomy was performed; tension, however, rose again to + 3 on the following day. On the 7th it was decided to remove the superior cervical ganglion of the sympathetic, which operation Mr. B. G. A. Moynihan at my request performed on the same day. The ganglion was reached through an incision behind the posterior border of the sterno-mastoid, carefully separated from the surrounding parts, and excised.

The immediate effect of the operation was striking, the tension of the eyeball falling rapidly to + ½, although there was no contraction of the pupil, the iris being fixed as described above. The following day (the 8th) tension rose to + 2, but two days later it was + ½ and vision had improved to ability to count fingers at 14 inches. There were slight fluctuations in the tension from day to day, but the improvement in vision was maintained until he left the hospital on the 30th. I saw him again on Jan. 5th, 1901, and found the tension + 1 and vision = ability to count fingers at 18 inches. No treatment, local or constitutional, was carried on subsequently to the operation, so that the reduction of tension and improvement in vision must be attributed entirely to the removal of the ganglion.

The effects of the operation are immediate and secondary. The immediate effects are relief of pain in the eye, contraction of the pupil when not fixed by adhesions, congestion, and lacrymation of the eye, reduction of tension, and unilateral sweating of the head; the secondary effects are progressive reduction of tension, sometimes preceded by a temporary rise, gradual improvement in vision, slight ptosis, and some sinking of the eyeball into the orbit. The lacrymation, congestion, and sweating usually disappear within 48 hours.

[1] A paper read before the Leeds and West Riding Medico-Chirurgical Society on March 15th, 1901.

The exact manner in which this operation gives relief in glaucoma is a matter of some doubt. Jonnesco[2] of Bucharest thinks that glaucoma is caused by a central lesion and that removal of the ganglion destroys the communication between this centre and the eye. The vaso-constrictor fibres are destroyed, blood-pressure is lowered, and extravasation is reduced. The excito-secretory fibres to the uveal tract are destroyed and the secretion of the aqueous is limited. The iris dilating fibres are destroyed, the pupil contracts, and the filtration angle is opened up. At the same time the fibres supplying the non-striped muscle in Tenon's capsule are cut off, so that the pressure on the efferent veins is removed.

From a consideration of this case it is clear that the contraction of the pupil, drawing the iris away from and so opening up the filtration angle following the removal of the ganglion, is a minor factor in the reduction of tension. It is obvious that the control of the sympathetic over the circulation and nutrition of the uveal tract is of much greater importance. We know that in many cases of serous cyclitis the filtration angle is free and unobstructed, and the rise of tension often seen is due to changes in the constitution of the intra-ocular fluid. It seems highly probable, therefore, from the rapidity with which the tension fell after the completion of the operation in the present case, although the pupil could not contract, that the good results which were seen after the performance of this operation were due, not so much to any change in the filtration angle brought about by contraction of the pupil, but rather to the abolition of the control of the sympathetic over the vascular apparatus and secreting epithelium of the uveal tract, whereby the character and amount of the intra-ocular fluid were materially altered.

Sympathectomy for glaucoma was first performed by Jonnesco in 1897 and since then has been carried out by many surgeons abroad and in England. Abadie,[3] Panas,[4] Ball[5] (St. Louis), Burghard,[6] Work Dodd,[7] and others have recorded cases. In Jonnesco's cases, which were chronic or subacute with only one acute case, very encouraging results were obtained. There was marked and permanent improvement in vision in all the chronic cases except those in which optic atrophy had set in, but there was no improvement in the acute case. In all cases the tension was immediately lowered and remained so and there was marked permanent contraction of the pupil with loss of pain in the eye. In the cases reported by Panas and Burghard the results of the operation were unsatisfactory and in Work Dodd's case disappointing. Ball's two cases were relieved, tension being reduced and vision improved, but there is no evidence that iridectomy would not have been equally effective. In Burghard's case intense pain at the side of the head and neck followed the operation. This unpleasant complication has been recorded by other operators. From a general consideration of the recorded cases, with the present large percentage of comparative and complete failures, it is probable that the severity of the operation as compared with iridectomy will prevent its performance in any but selected cases, particularly those in which iridectomy and sclerotomy have failed.

In glaucoma simplex the results have been more uniformly satisfactory than in inflammatory cases, but in the latter when iridectomy has failed sympathectomy holds out some hope of relief. In, however, most cases of glaucoma arising from obstruction in the filtration angle, especially acute cases, iridectomy will remain the operation of choice and will be found to give equally satisfactory, or even better, results than follow removal of the superior cervical ganglion of the sympathetic.

Leeds.

[2] La Presse Médicale, 1898.
[3] Archives d'Ophtalmologie, 1898.
[4] Ibid.
[5] Proceedings of the International Ophthalmological Congress, 1899.
[6] Brit. Med Jour., Oct. 20th, 1900, p. 1175.
[7] THE LANCET, Oct. 13th, 1900, p. 1071.

BRISTOL MEDICAL CHARITIES.—The late Mr. J. E. Exley bequeathed £1000 each to the Bristol Royal Infirmary, the Bristol Children's Hospital, and the Queen Victoria Convalescent Home, Bristol, also £500 to the Trowbridge Cottage Hospital. The residue of the property is left to his widow during her life in trust for the Bristol Royal Infirmary, which will eventually become entitled to about £15,000.

ON THE PATHOLOGICAL CHANGES IN A CASE OF PROGRESSIVE MUSCULAR ATROPHY.

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DURING recent years many distinct clinical varieties of chronic muscular atrophy have been separated from progressive muscular atrophy. Hence cases to which the term "progressive muscular atrophy" can now be applied are rarely met with, and several writers have grouped together progressive muscular atrophy and amyotrophic lateral sclerosis as the same disease. In cases regarded as progressive muscular atrophy during life the lateral or crossed pyramidal tracts of the spinal cord have very often been found sclerosed more or less on pathological examination, even though there has been no spastic condition of the legs; and this is one reason for grouping together amyotrophic lateral sclerosis and progressive muscular atrophy as one pathological affection or one disease. A few rare cases are on record, however, in which during life the symptoms were those of progressive muscular atrophy (of the Aran-Duchenne type), and on pathological examination of the spinal cord the lateral or crossed pyramidal tracts were found to be normal. Such cases have been recorded by Dr. C. E. Beevor, Professor Strümpell, and MM. A. Dutil and J. B. Charcot and others. (In several cases there has been a slight degeneration of nerve fibres in the anterior ground bundle close to the anterior horns, though the crossed or lateral pyramidal tracts were normal; in other cases all parts of the anterior and lateral white matter were normal.) To the few cases hitherto recorded the following pathological report may be added; it appears to be worthy of publication owing to the rarity of such records.

The spinal cord of this case was kindly given to me by the late Dr. Leech of Manchester, who, had his life been spared, would probably have written the clinical portion of this article. My report will be devoted, therefore, to the microscopical examination; and to this I have added a brief clinical note of the case which I had the opportunity of examining from time to time, for many years, when the patient consulted Dr. Leech at the Manchester Royal Infirmary.

I first saw the patient, a man of middle age, in 1879. At that time both arms were paralysed, and the disease had commenced a few years previously. I last examined the man, along with Dr. Leech, in 1898. The patient died about 12 months later. The clinical features of the case were those of progressive muscular atrophy (of the Aran-Duchenne type) as described in the older text-books. There was slowly progressing muscular atrophy, with paralysis, affecting the small muscles of the hands, the forearm and the upper arm muscles, and finally the muscles of the neck. The arms for 20 years hung quite helpless by the side and the head was bent forwards. There was no affection of sensation, and the legs, bladder, and rectum were unaffected up to the time of the last examination. On many occasions I examined the condition of the legs with the object of ascertaining whether there was any evidence of spastic paralysis, but I was never able to detect any. When I last examined the patient in 1898, 12 months before his death and more than 20 years after the onset of the disease, the condition was briefly as follows. Both arms were markedly atrophied and completely paralysed and hung quite helpless by the sides. Every muscle of the hands and arms appeared to have atrophied completely. The head was bent forwards owing to the paralysis of the muscles of the neck. There were no symptoms of bulbar paralysis. The bladder and the rectum were unaffected. The patient was able to walk quite well. There were no indications of a spastic gait. There was no paresis of the muscles of the leg nor any rigidity to passive movements. The knee-jerks were present and there was no ankle-clonus. Sensation was not affected. Clinically, therefore, there were no symptoms to indicate any affection of the lateral pyramidal tracts of the spinal cord at the end of 20 years. I did not see the man during the last few months of his life and do not know the exact cause of his death. Dr. W. H. Pomfret, formerly surgical registrar at the Manchester Royal Infirmary,

having heard of the patient's death, succeeded in getting permission to make a limited post-mortem examination. He removed the spinal cord, the musculo-spiral nerve, and a piece of the adjacent muscular tissue of the forearm. To Dr. Pomfret, therefore, I am directly indebted for the specimens which he kindly forwarded to me with the permission of Dr. Leech. The specimens were hardened in Müller's fluid, embedded in celloidin, and the sections were stained according to Weigert's and Marchi's methods, and also with aniline blue-black and logwood. The nerve roots were stained according to Heller's pyrogallic and osmic acid method.

MICROSCOPICAL EXAMINATION.

In the lower and middle cervical regions, on transverse section, whether stained with aniline blue-black, logwood, or according to Weigert's or Marchi's methods, the crossed or lateral pyramidal tracts of the white matter appeared to be quite normal (Fig. 1). Also the direct pyramidal tracts

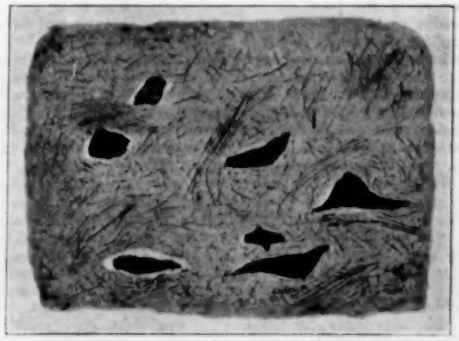
FIG. 1.

Transverse section of spinal cord, lower cervical region; progressive muscular atrophy; Weigert's stain; crossed pyramidal tracts normal. (Micro-photograph.)

and all the white matter of the anterior and lateral columns of the cord appeared to be normal with the exception of a very slight excess of neuroglia connective tissue in the region of the direct cerebellar tracts. The white matter in the antero-lateral columns close to the anterior horns appeared quite normal. In the anterior white commissure, in the sections stained according to Weigert's method, the nerve fibres were seen very distinctly. In the posterior median columns there was a very slight excess of neuroglia connective tissue (seen both in sections stained according to Weigert's method and in those stained with aniline blue-black), but the posterior external columns were normal. The anterior horns of grey matter were a little smaller than they are in sections of a normal cord at this region. The ganglionic nerve cells of both anterior horns had disappeared. After examining a number of sections of this region I was only able to find one atrophied nerve cell in the median region of one anterior horn. On examining sections stained according to Weigert's method the disappearance of nerve fibres in the anterior horns of the grey matter was very evident. The fine delicate nerve fibres (seen so clearly in the normal anterior horns in sections stained according to this method) were greatly diminished in number (Fig. 3). The fine nerve fibres of the posterior horns appeared to be normal. The nerve fibres from the posterior roots which enter the median side of the posterior horns were quite normal and were seen passing forwards to the intermediate grey matter, whilst the fine fibres in the surrounding median grey matter were diminished in number. In sections stained with logwood and eosin the nuclei of the neuroglia in the anterior horns were seen to be increased in number. The anterior nerve roots, even to the naked eye, appeared to be markedly atrophied; they were much smaller than the posterior roots and much less firm to the touch. On microscopical examination the posterior roots were normal, but the anterior nerve roots were seen to consist chiefly of fibrous tissue and empty nerve sheaths, with here and there a very few normal nerve fibres. The few remaining normal nerve fibres in the anterior roots were widely separated by fibrous tissue (as was well seen in specimens stained according to Heller's method). There was marked "hyaline" thickening of the walls of the small blood-vessels in the anterior median fissure and in the anterior horns of grey matter.

In the upper cervical region the condition was much the same. Most of the nerve cells in the anterior horns of grey matter had disappeared or atrophied markedly. The crossed or lateral pyramidal tracts and other parts of the

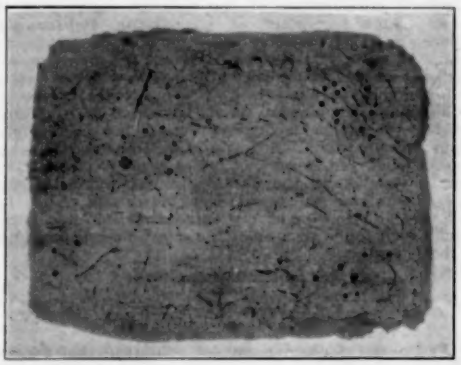
FIG. 2.



Normal anterior horn of grey matter, cervical region; Weigert's stain; showing nerve cells and numerous fine nerve fibres.

white matter were normal, with the exception of a very slight excess of neuroglia connective tissue in the posterior half of the posterior median columns. Sections of the dorsal region (upper and lower) presented normal appearances. The lateral or crossed pyramidal tracts, the posterior columns, and other parts of the white matter appeared to be normal both in sections stained according to Weigert's and Marchi's methods, as well as in those stained with aniline blue-black. Some of the nerve cells in the anterior horns and in Clarke's columns were pigmented, but otherwise the cells and fibres in both of these

FIG. 3.



Grey matter of anterior horn, lower cervical region; progressive muscular atrophy; Weigert's stain; nerve cells absent; fine nerve fibres very scanty.

regions appeared to be normal. The anterior nerve roots, to the naked eye and on microscopical examination, were normal in the dorsal region.

In transverse sections of the musculo-spiral nerve most of the bundles of nerve fibres appeared to be normal; in a few bundles there was a little increase in the connective tissue between the separate nerve fibres. The atrophied muscular tissue from the back of the forearm presented a very slight

resemblance to normal muscle to the naked eye, but it was very soft and flabby. On microscopical examination, however, the changes were most marked. Not a single normal striated muscle fibre could be detected. In place of the muscular tissue were collapsed muscle sheaths containing numerous elongated or round muscle nuclei which stained with logwood. Between these bundles of collapsed, well nucleated, muscle sheaths there was loose connective tissue, with a few clusters of large fat cells here and there. No evidence of hyaline or fatty degeneration of muscle fibres could now be detected.

The microscopical examination here recorded is of interest, because the case is one of the few which furnish clear pathological evidence that the crossed or lateral pyramidal tracts may appear normal in cases which have presented the symptoms of progressive muscular atrophy (of the Aran-Duchenne type). The crossed or lateral pyramidal tracts, from the highest cervical to the lowest dorsal region, presented no evidence of degeneration on microscopical examination, even in sections stained according to Marchi's and Weigert's methods. Also during life, up to the time of the last examination (more than 20 years after the onset of the disease) there were no symptoms of disease of the crossed pyramidal tracts.

Progressive muscular atrophy is closely allied to amyotrophic lateral sclerosis, and probably the pathological processes are in many respects similar; also there are transitional forms—cases corresponding clinically to progressive muscular atrophy, but pathologically to amyotrophic lateral sclerosis more or less. There is, however, a small group of cases which, both clinically and pathologically, differ from amyotrophic lateral sclerosis—cases such as that described in this article, and those previously recorded, to which I have referred. For these cases it appears advisable, at present, to retain the old name of "progressive muscular atrophy."

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Manchester.

TETANY.

BY FRED. TRESILIAN, M.D., M.R.C.P. EDIN.

TETANY, which is not an uncommon disease in children, is somewhat rare in adults, and therefore a few cases which have occurred in my practice of which I kept notes may be worthy of record.

In adults tetany is largely confined to women, being frequently associated with either pregnancy or lactation; it was primarily recognised by Trousseau in this connexion. It is only very occasionally—perhaps never—that it appears as a primary condition, being generally caused by some other disease of which it would seem to be a result. It has no special pathology of its own—at least, none has as yet been discovered—and it is apparently due to a reflex irritation of the excitable portion of the cortex—i.e., the motor areas, either alone or perhaps with the groups of cells in the anterior cornua of the cord. Clinically it is connected closely with epilepsy and chorea. Its association in adults with dilatation of the stomach is now established, and two of the cases which I have recorded below are an evidence of this point. The cases of this kind are mostly confined to the female sex. It may be assumed in these cases with gastric dilatation that it must be due to absorption from the stomach of toxins due to fermentation of food acting on the cells in the motor regions of the brain. In one of my cases this was manifest and the result was fatal. A similar explanation may be given of its occurrence in infants in association with diarrhœa and gastro-enteritis, in which conditions fermentation is nearly always present and toxins are in abundance, and even in rickets similar causes may be at work and may account not only for tetany but other nervous lesions, such as eclampsia and laryngismus, which are so frequent. Even those cases occurring in connexion with pregnancy or lactation, as well as those recorded by Weiss and Wölfer after excision of the thyroid gland, may possibly be explained by the same hypothesis—of some toxin present in the blood which affects the cortical grey matter. I have but six cases to record and four of these are in children.

CASE 1.—The patient was a male infant, aged seven months. He cut his first teeth at five months and was a healthy child. He had sudden attacks of convulsions—both tonic and clonic spasm—which continued for three days, when acute pneumonia appeared in the right lung. The convulsions continued intermittently for a week until the pneumonia began to clear up, when they ceased. This was followed by an attack of diarrhœa and sickness, which got better in a few days and left as a result constipation with large hard masses of fæces. The child was very much reduced by his illness and the tetany occurred while he was in this condition. There was marked tonic carpo-pedal spasm which was continuous even in sleep. The position of the hands was characteristic and the toes were flexed into the soles. There was considerable œdema of the face and of the backs of the hands and feet which were solid and non-pitting. There were jerky twitchings of the hands and arms. The condition lasted for some weeks and then got well. There was no evidence of rickets in this child. The treatment adopted was the administration of syrup of chloral and emulsion of cod liver oil. Carpo-pedal spasms are a rudimentary form of tetany, but are much more common than real typical tetany.

CASE 2.—The patient was a male infant, aged 15 months. There were no signs of rickets. He had been, and was at the time of treatment, a fine, healthy child. His first teeth had come when he was seven months old and he had got teeth rapidly within the following two months. He had been suckled and had lately had food as well. There was no history of diarrhœa or convulsions and no assignable cause for the present attack. There were contraction, tonic spasm, and œdema of both hands and feet. He had a cough with a crowing sound—"like a fowl crowing," his mother described it—evidently associated here with laryngismus which is essentially a rickety neurosis, still I could find no outward and visible signs of rickets.

CASE 3.—The patient was a female infant, aged three years, a stunted, rickety child, of about the size of a baby of eighteen months of age. I think this was the most marked case of rickets that I have ever seen. The child had never made any attempt to walk, she did not get a tooth until long after she was 12 months old, she had many attacks of both bronchitis and convulsions, and she had distorted joints and spine, &c. There was so much œdema of the face and hands that I examined the urine for albumin. The position of the hands and feet was just as in the other cases.

CASE 4.—This was an exactly similar case to the last. The patient was a stunted, rickety female child, aged two years, whom I had attended for both convulsions and bronchitis.

CASE 5.—The patient was a married woman, aged 41 years. The present was her third attack. The first had occurred 11 years before soon after her confinement, when she had got up and was suckling her infant. She had loss of feeling in the feet and pain and spasm in the hands and also, she said, loss of sight which lasted three days. She said that she felt at the time as if her face was greatly swollen but that it was not swollen and that this condition lasted then for six or seven weeks. She asserted also that she lost her speech for part of a day. Seven years ago she had another attack in just the same way after a confinement and while suckling her baby. This attack was not quite so severe as the previous one, but still it lasted for four or five weeks. She had recently had influenza. She had just nursed her daughter through a long attack of peritonitis, and she had recently moved from one house to another and had not got straight when the influenza occurred. I mention this to show that the patient had a good deal of both anxiety and worry. The position of the hands was characteristic and the spasm of the interossei so much that she could not separate the fingers, and my efforts to help her to do so evidently caused her great pain. There was a good deal of pain in the hands and arms. The feet were unaffected; sensation in both hands and feet was normal. On examining the abdomen I found marked dilatation of the stomach, reaching down to below the umbilicus. There were dulness at the lower level, a tympanitic note above, and a distinct splashing sound on succussion. Peristaltic action was evident and retention of food with periodical vomiting of large quantities of sour fluid. The condition disappeared in about a week. This case is interesting from the fact, if true, that she had temporary aphasia and loss of sight. It shows that the toxin which causes the tetanic spasm to appear is capable

of attacking other regions than the motor part of the cerebral cortex, and that the motor area is not exclusively selective.

CASE 6.—The patient was a woman, aged 53 years. I first saw her in October, 1900, when she had suffered from gastric symptoms for eight months and pain and vomiting with loss of flesh. On examination I found extreme dilatation of the stomach reaching downwards to the hypogastrium, with marked peristaltic action from left to right on stimulating the stomach to contract. There was a hard, square, nodular tumour over the pylorus which was tender on pressure. She vomited enormous quantities of thick fluid daily or on alternate days, with ease to her pain. There was advanced malignant disease of the pylorus. She held her own until Dec. 20th, when I was called urgently to see her and found her comatose. The condition was peculiarly interesting. The face, hands, arms, and body in general were of a dark red colour with a bluish tinge. The hands were in the position characteristic of tetany. There was slight flexion of the wrists, but the fingers were extended at all joints and were opposed to each other. The feet were similarly affected, each foot being extended with the toes flexed into the soles. The pupils did not react to light and the conjunctival reflex was absent. She had had two convulsive attacks previously to my seeing her, and she had one in my presence in which she became livid and after which the colour became dark red as before. The convulsions were chiefly facial, with twitchings of the arms. There was incontinence of urine. During and after the eclampsia there was some tetanic spasm of the jaws, but it could easily be overcome. The eyes were closed and on raising the lids I found that there was divergent strabismus. There was no opisthotonos or any approach to it and the legs were not affected by the convulsions. She had another convulsive attack after I had seen her. She died the next day. The coma lasted to the end. A fatal result during tetany must be of rare occurrence. A peculiar feature about the cortical irritation was, that though bilaterally the leg centres are so close together, they were not affected by the convulsions, which emanated chiefly from the centres for the facial and ocular muscles and the arms and hands. The cortical discharges apparently did not spread upwards or across by the callosal fibres.

Enfield.

CASE OF MULTIPLE EPITHELIOMA OF THE TONGUE IN A WOMAN, AGED TWENTY-FIVE YEARS, RESULTING IN SPONTANEOUS AMPUTATION OF THE GREATER PART OF THE ORGAN.

BY T. E. HAYWARD, M.B. LOND., F.R.C.S. ENG.,

AND

R. G. HENDERSON, M.A., M.B., CH.B. ABERD.

THE following case presents so many points of interest that we feel it ought to be put on record. As the patient only came under our notice in the later months of the disease we are unable to vouch for the early history of the case, but the facts as gathered from herself and friends are as follows.

About the beginning of 1900 or the end of the previous year the patient, then about 24½ years of age, noticed a blister on the left border of the tongue opposite the molar teeth. The blister was irritated by the adjacent tooth and broke, a small sore resulting which was very painful. For some months, however, she paid little attention to this and in the meantime, having become pregnant, medical advice was further postponed till after the birth of the child. She then consulted a medical man who advised removal of several teeth and this was done in a provincial infirmary last December. At the same time a portion of the ulcer, which she describes as being "only a small opening then," was removed and examined and was stated to be "not cancer." She was given a mouth-wash but no medicine. The ulcer, however, now got rapidly larger and after a stay of three weeks in the institution she went out feeling rather worse than before. On March 23rd of the present year the patient came under our notice for the first time suffering from severe arterial bleeding from the mouth. This proceeded from a huge ulcer of the tongue about the middle of the left border or rather farther back. The ulcer appeared as a deep cavern about half an inch in diameter at the surface and an inch or more in depth, its direction being down and in towards the hyoid bone. The base could not be seen on account of its great depth but could be felt with the finger and from the base the bleeding appeared to proceed. The walls of the ulcer were even, firm, but not indurated, while the margin was clean cut, perhaps a little raised, but not indurated or everted. The bleeding was stopped by packing with gauze moistened with turpentine and perchloride of iron.

The diagnosis at this stage was difficult. The patient was a young married woman, aged 25 years, the mother of three healthy children and of good previous health, although now rather pale and poorly nourished. She had never had a miscarriage or anything to indicate syphilitic infection. Her family history was excellent. Her parents and grandparents were still alive and were known to us as particularly healthy people. A remote family history of cancer was, however, obtained: (1) the patient's great-grandfather (grandfather's father) died from cancer; and (2) a nephew of her grandmother died from cancer of the lip, aged about 50 years, attributed to the use of a clay pipe. A slight taint would, therefore, appear to be present in both grandparents which we mention for what it is worth. The pain from the ulcer was only moderate; the discharge was slight and fœtid. The jaw appeared to be slightly swollen on that side and a small gland was felt under it. The diagnosis we considered uncertain, but we put the patient on anti-syphilitic and tonic treatment, together with an antiseptic alkaline mouth-wash. On March 25th the patient was suffering intense pain on the right side of the tongue, especially on attempts to swallow; this had been present, more or less, for two days, but was now much worse. She attributed it to the manipulation in packing the ulcer two days before when the tongue was pushed to the right side and irritated by a sharp tooth. This we found to be the case. There was an acute inflammatory swelling of the size of a large pea, very red and tender, on the border of the tongue, while the adjacent tooth had a sharp ragged edge. This tooth was removed on the following day, together with one on the opposite side which it was thought might irritate the ulcer. On the 29th it was noted that the ulcer was getting smaller. The inflammatory swelling on the right side was also rather smaller and the pain was almost gone. The swelling was paler in colour also, and at one part the pale, semi-translucent appearance, together with the increased hardness, suggested malignancy. On April 1st the ulcer was noted as getting smaller, but the walls appeared more roughly irregular. The tongue moved as if it would break across if pushed to the right. The swelling on the right side had not disappeared, but was now pale and hard and had begun to ulcerate on the summit. On the 19th the swelling on the right side had ulcerated deeply, so that there was now a cleft extending across the right half of the tongue towards the original ulcer. Behind and in front the cleft was bounded by a raised hard ridge of clearly malignant character. On this day also the patient complained of pain in the floor of the mouth under the fore part of the tongue. She had felt it slightly for a day or two. On examination a narrow transverse ulcer was found in the region of the frænum. This ulcer was malignant in character but quite distinct from either of the other two. The disease now made rapid progress. The cleft on the right side extended across to join the large ulcer on the left, so that the tongue appeared to be divided into two parts by a deep ulcerating trench running horizontally across the dorsum about its middle. The possibility of relief by operation had been suggested to the patient some time before but was not urged as we considered neither the local nor general conditions favourable. At our request, however, she entered the Liverpool Royal Infirmary on April 27th under the care of Mr. F. T. Paul, but operation was considered undesirable and she returned home in a few days. On May 4th the anterior portion of the tongue became detached, a result we had expected for some time. There was no bleeding. The patient, who had felt it getting loose for a day or two, simply lifted it out of the mouth without any severance of tissue. The detached portion was received the following day. It measured one inch long from tip to base and one and a quarter inches broad at the base which was slightly oblique. The under surface was ulcerated. The extreme tip had become black from commencing gangrene. The floor of the mouth now presented in front a dirty grey nodular area, limited behind by an ulcerating overhanging wall which represented

the free edge of the root of the tongue. The increased pain now called for large doses of opium, and this for a time had the effect of slightly improving the patient's general condition, which was very miserable, and also, we feel sure, of checking to some extent the local disease. Life dragged on till June 15th, when she succumbed to the extreme exhaustion from pain, lack of nourishment, and the effects of occasional large hæmorrhages. Her age at death was 28 years and one month. A few days before her death the local condition was as follows. A deep excavation ran alongside the left ramus of the jaw, extending back to involve the fauces and tonsil. The bone itself was carious and thickened on the same side. On the right side the ulceration was less deep. The floor of the mouth was flat and firmly nodular in front, while behind the root of the tongue was represented by a low mound of tissue with a median depression permitting a full view of the pharynx. The general emaciation was extreme. The total duration of the illness was about 18 months. Although the clinical features had for long left no doubt as to the diagnosis a portion of tissue was sent for examination to the Clinical Research Association who reported: "These sections show a typical squamous-celled epithelioma of the tongue which has already invaded the muscular tissue. There is no evidence of any previous syphilitic lesion. The age and sex of this patient are very exceptional."

Remarks.—We have confined our account chiefly to the local features of the case as these were of the most peculiar interest. The pain, salivation, difficulties of feeding, and general distress were such as occur in every case of advanced cancer of the tongue. A few points, however, call for special remark. First, as to age and sex. Cancer of the tongue is decidedly rare under 30 years of age. Butlin[1] refers to the few recorded cases, three in males and three in females. In the present case the trouble began about the age of 24½ years and lasted about 18 months; but we are doubtful whether it was malignant from the beginning. It is also a curious fact that whereas of cases of cancer of the tongue in general only about 15 per cent. are women, yet when the disease occurs under the age of 30 years it affects the sexes equally. Then as to the multiple character of the lesions. We had here three distinct centres of malignant ulceration: first, the original large ulcer; secondly, the acute inflammatory swelling on the right border of the tongue, which from day to day we watched gradually assume malignant characters and from which the fragment for microscopical examination was taken; and thirdly, that beginning on the frænum and extending backwards. Each of them was clinically malignant, although a portion of one only was submitted to microscopical examination. Butlin[2] states that a good number of double epitheliomas have been recorded, but that the number two has not been exceeded. We think in the present case that there were three and to a certain extent we can explain their occurrence. Assuming, as we must, that in this patient there existed some overwhelming tendency to cancerous disease, we would expect it, like other pathological conditions, to attack spots of lowered tissue vitality. This was clearly so on the right border of the tongue where a sharp tooth caused an acute inflammatory swelling—a common enough occurrence; however, although the cause was removed the effect did not disappear but became gradually tranformed into a malignant tumour. So with regard to the frænum. The constant soaking in an extremely irritating and possibly infective discharge would undoubtedly lower its vitality and hence it succumbed. Thirdly, the combined effect of those lesions in producing a spontaneous amputation of the greater part of the tongue must be, we imagine, a very unusual occurrence. We have not seen a description of anything similar. The way in which it was brought about was very simple. The two ulcers on the opposite borders of the tongue gradually united across the dorsum and then formed a deep vertical trench across the tongue, which was met by the third ulcer extending backwards from the frænum along the floor of the mouth.

Finally, as to the treatment little need be said. Anti-syphilitic measures, although they appeared to bring about improvement at first, were discarded after a few weeks. Fœtor was combated by an antiseptic mouth-wash. Pain was allayed by a paint of β-eucaine locally and opium internally. We believe that the free use of opium in the later stages prolonged the life of this patient by about two months.

Haydock, Lancashire.

[1] Butlin and Spencer: Diseases of the Tongue, second edition, p. 312.
[2] Op. cit., p. 327.

A CASE OF EXTENSIVE ENTERECTOMY.

BY ARTHUR E. BARKER, F.R.C.S. ENG.,
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THE following case illustrates a very dangerous sequel to an ordinary simple strangulated femoral hernia operated on in the usual way and its cure by extensive enterectomy. It also suggests some questions bearing upon the general treatment of cases of severe strangulation without actual gangrene.

The patient, a married woman, aged 39 years, was admitted into University College Hospital on July 1st, 1900. Her personal and family history was good. She had suffered from a right femoral hernia of moderate size for four or five months which had come down during a bad fit of coughing. It gave but little pain or other trouble and always returned on lying down. On the afternoon of June 30th, some 18 hours before admission, the hernia came down while the patient was walking in the garden and caused great pain all over the abdomen and the back which was continuous. At 9 P.M. she vomited and at intervals during the night. She took some castor oil, but it returned at once. On one occasion the vomit contained a little dark blood. The next morning (July 1st) she was admitted and I operated at once. The usual incision was made and when the sac was opened a good deal of fluid of high colour and foul smell escaped. The gut was dark, congested, and œdematous, but it retained its lustre. Both sac and gut were now carefully washed before the constriction was divided. The bowel was then drawn down and examined for further damage, but none was found. As the œdema of the loop soon began to disappear when released and as the circulation seemed good it was washed, dried, and reduced into the abdomen. The usual radical cure was then done and the wound in the soft parts was closed without drainage. Recovery was rapid and uneventful except for flatulence. The bowels acted unaided on the sixth day and subsequently. There was no sickness after the operation but there was some pain in the abdomen.

The stitches in the skin wound were removed on the tenth day, when perfect primary union was found. The patient left the hospital perfectly well on the sixteenth day for Brixton. Some weeks later I heard from her medical attendant, Dr. Horden, that she had a severe attack of intestinal obstruction with great pain on vomiting. This passed off, however, under his skilful treatment with opium enemata and fomentations and she was able towards the end of August to return home to Cornwall. But before doing so she called at the hospital to show herself and she then seemed to be in excellent condition. At the beginning of October, 1900, I had a letter from her medical attendant, Dr. F. Hichens of Redruth, to say that on Sept. 9th she had been attacked again suddenly with intestinal obstruction in a very severe form with great pain starting in the right groin and spreading all over the abdomen, with vomiting and distension, so that he feared for her life, so great was the collapse and so extensive the peritonitis. His very thoughtful treatment was, however, followed by recovery. His object in writing was to suggest exploration of the abdomen as it seemed beyond doubt that there must be a kink or adhesion, or both, about the point of the bowel which was originally involved in the hernia. The patient returned to London with this object in view and she was re-admitted on Oct. 13th, 1900. She now appeared to be in good health, but she gave a history of great constipation alternating with diarrhœa ever since the first operation, combined with much flatulence. Since the last attack on Sept. 9th she had only to complain of irregular bowels, flatulence, and irregular and painful spasms on the right side of the abdomen. On examination there was no trace of the return of the hernia at the seat of the first operation and no tenderness was there. The abdomen was generally soft, but there was some tenderness in the right iliac fossa on deep pressure and there were some indefinite thickening and resistance as well. Nothing abnormal was found otherwise in the abdomen.

[1] A paper read before the Medical Society of London on April 22nd, 1901.

Taking the view that there must be either a kink at the original seat of hernial strangulation or bands of adhesion or both together I opened the abdomen (on Oct. 19th) by an incision along the outer border of the right rectus muscle. It was at once seen that the intestine was matted together round the knuckle of intestine originally in the hernia by many firm adhesions which fixed it in the position to which it had been returned. It was sharply kinked and soldered up into one mass in this position. The adhesions spread for a considerable distance around and one loop a foot from the kink was fixed by a strong band out of sight on the *left* side of the abdomen. To reach this I had partially to divide the right rectus muscle transversely from without and then only with the greatest difficulty could this band, which was about as thick as a goose-quill be separated from the bowel. An attempt was now made to undo the kink but it only resulted in opening the damaged, softened intestine. I therefore closed the intestine above and below all the portions involved in the matted adhesions in the Doyen's forceps and removed the whole mass, cutting the mesentery close to the intestinal attachment. The cut ends of the intestine were now united end to end in the usual way by two rows of fine silk sutures—a deep and a superficial. The hole in the mesentery was also closed and the area of operation was dried out. The transverse cut in the rectus muscle was stitched up with buried sutures, as also was the upper part of the vertical incision. The lower part of the latter was left open to hold a gauze drain for a few days.

The patient bore the operation very well and convalescence was uneventful, except for a slight rise of temperature for the first few days, until the gauze drain had been removed. She had been rather collapsed on the evening of operation, but she recovered rapidly under saline injections under the skin and rectal injections of brandy-and-water. The bowels acted well on the fifth day naturally and almost daily subsequently. The superficial wound healed per primam except at the lower angle where the drainage gauze lay and at the upper angle where there was some serum pent up in the fat. She was fed by the mouth with small quantities of albumin water from the second day onwards and was soon taking solids. At no time was there any trace of fæces in the drainage from the lower angle of the wound. The patient returned home to Cornwall just before Christmas quite well.

The following is the surgical registrar's description of the parts removed:—

> The length of the small intestine removed was ascertained by the curator to be 37 inches. The upper seven inches above the obstruction was hypertrophied and dilated. The chief narrowing consisted of an atrophied fibrous shrinking of the bowel, reducing its lumen to the size of a cedar pencil, at one spot about one-third of an inch in length. Immediately around this and for eight inches below the bowel is irregularly distorted by adhesions which matted it together during its stay in the abdomen. Towards the lower end there are several more adhesions which do not distort the gut.

This case must, I think, have a certain interest for all surgeons, whether in general or in special practice. It illustrates the need of an early operation in all cases of strangulated hernia. It also shows that although a relatively early operation may be done and be immediately as successful as any such measure can be all dangers are not necessarily thereby prevented. In this case we know certainly the moment at which the strangulation began. We know that the herniotomy was performed about 18 hours later. We know that the bowel although discoloured showed active circulation and no lymph upon its surface. And yet, though the recovery was perfect from the reduction and the radical cure, a most serious condition of things was left in the abdomen which led to two severe and nearly fatal attacks of intestinal obstruction and ultimately required one of the most serious operations in surgery. The first herniotomy was quickly over and it involved no great exposure of the gut to manipulation. It was such as one constantly does without misgiving, and yet the changes induced in the bowel by the strangulation were very grave. Fortunately, the subsequent attacks of obstruction were under the care of two highly skilful general practitioners who not only treated them with the utmost judgment but also recognised with promptness the need of subsequent surgical interference. It is also fortunate that now in enterectomy we have a means of remedying such conditions as result from kinks and adhesions without such severe risks as were formerly bound up with excision of the intestine.

Harley-street, W.

PRELIMINARY NOTE ON THE DIRECTION OF THE AIR CURRENTS IN NASAL RESPIRATION.

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OBSERVATIONS were carried out in order to determine the exact course which the air takes within the nose during nasal inspiration and expiration. The method employed for inspiration was that of impregnating the air with lycopodium by means of an insufflator held about eight inches from the nose both during quiet and forcible inspiration, and then noticing the disposition of the powder within the nasal cavities. For expiration the gentle, and afterwards the forcible, exhalation of tobaco-smoke through the nostrils was carefully observed during rhinoscopic examination.

The results of these observations show that in normal noses during quiet inspiration the powder impinges on the septum about half an inch within the nostrils and a third of an inch above the floor, and is then carried upwards and backwards in a broad band into the middle and superior meatus, entirely missing the inferior passage and lower turbinate. After deep and forcible inspiration the powder takes the same course and is, in addition, seen to be deposited round the upper part of the posterior choanæ, the upper fourth of the septum, and on the roof of the post-nasal space. It is also carried down the middle of the posterior wall of the oro-pharynx, coming to a point about the centre, from which spot it takes a straight course into the larynx, impinging on the arytenoids but missing the epiglottis. In expiration the smoke when gently exhaled passes chiefly through the inferior meatus—that is, below the upper level of the inferior turbinate. In forcible exhalation some smoke passes through the middle meatus as well as the lower.

In abnormal nares any irregularities, such as spurs, deviations, enlargements, and hypertrophies of the inferior turbinated bodies, &c., which prevent the passage of air from the vestibule to the middle meatus will become covered with powder and divert its course in a manner varying with the exact position and extent of the irregularity. Most spurs and enlargements of the inferior turbinate are situated too low to intercept the inspired powder; deviations of the septum, polypi, and enlargements of the middle turbinate, on the other hand, become thickly coated with powder. In expiration complete blocking of the inferior meatus diverts the smoke into the middle meatus, from which it issues slowly and diffusely instead of in a straight compact stream as seen when it comes through the inferior meatus in a normal nose. Spurs, as a rule, split the stream, so that some comes below it through the inferior meatus and some above it through the middle passage, in which case they apparently cause no difficulty to expiration.

In cases of adenoid hypertrophy where the growth is slight the powder takes the usual course in the anterior nares, but collects between the septum and the growths and around the posterior choanæ. In bad cases the powder takes a lower course than in a normal nose, being seen resting chiefly on the inner and upper surfaces of the inferior turbinate and on the lower part of the septum. Expiration is not as a rule interfered with. In no case of either normal or abnormal nares was any powder seen on the under surface of the lower turbinate or along the floor of the nose.

From these observations it may be gathered that during quiet inspiration in a normal nose the air traverses the middle, the superior, and probably the fourth meatus, and never the inferior meatus. This makes it a little difficult to explain how the inferior turbinates perform their function of warming and moistening the air, but renders the stimulation of the olfactory nerve endings easily explicable. As regards spurs and deviations of the septum and enlargements of the inferior turbinates it seems that they only interfere with inspiration when they are in the way of the entrance of air into the middle meatus. Polypi or enlargements of the middle turbinates, on the contrary, considerably interfere with easy inspiration. Hypertrophies and growths springing from the roof of the naso-pharynx will also cause considerable obstruction to inspiration, being in the direct air way. It

may also be concluded that in expiration the air traverses the inferior meatus chiefly and that any hypertrophies or deformities causing stenosis of this passage will render expiration uncomfortable and difficult. In conclusion, it may be noted that the use of lycopodium as above described may be applied for practical purposes. The powder will be freely deposited on any irregularity which is causing obstruction and which should be removed, and, conversely, if a spur, for example, is left untouched by the powder it may be left alone as far as respiration is concerned, unless it is sufficiently large to interfere with expiration, which is not often the case.

Harley-street, W.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum allorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

ST. GEORGE'S HOSPITAL.

A CASE OF HÆMORRHAGIC TYPHOID FEVER.

(Under the care of Dr. W. EWART.)

FOR the notes of the case we are indebted to Dr. Lee Dickinson.

A woman, aged 29 years, was admitted into St. George's Hospital on Nov. 18th, 1892, under the care of Dr. Ewart. The family history was good and there was nothing upon the most careful inquiry that could be construed into inheritance of hæmophilia. The patient, indeed, had been liable to somewhat profuse menstruation for the last seven years, but there were no other hæmorrhages and the general health was fairly good. The only serious illness remembered was an attack of pleurisy on each side in succession in 1886; the left pleura was aspirated and she made a good recovery. There was no suspicion of alcoholism.

The patient was sent to the hospital as a case of typhoid fever of about 12 days' duration, the leading symptoms having been head-ache, perspirations, and disturbed sleep. Spots had been found four days before admission. When the patient was admitted she was somewhat anæmic and rather too fat, but she was not profoundly impressed by her illness, and there seemed to be no reason why she should not make a good recovery. The diagnosis of typhoid fever was fully confirmed. There were several rose-spots on the abdomen at the time of admission and a few spots were observed as late as Dec. 7th. The bowels were at first confined. The temperature was irregular but never very high; it reached 103° F. on more than one occasion and averaged about two degrees lower. As regards the hæmorrhages, the first to be observed was a moderate loss per vaginam, which was present on admission and continued to within a week of death. Early on Dec. 12th severe hæmorrhage from the gums set in and later in the day a copious motion was passed consisting largely of red blood. Saccharated lime, gallic acid, and the usual remedies for intestinal hæmorrhage were employed, but blood continued to pass from the bowel, though not in large quantity. Many small petechiæ appeared on the skin, a considerable ecchymosis under the right eye, and others beneath the ocular conjunctiva. On Dec. 15th the urine was loaded with corpuscular blood, the vaginal discharge having ceased. The retinæ were free from hæmorrhage. A drop of blood from the finger flowed readily, clotted very imperfectly, and was of pink colour. Microscopically it resembled the blood of pernicious anæmia, the red cells being enormously diminished in number and individually rich in hæmoglobin. The leucocytes were considerably increased, and on one or two occasions granular masses of pigment were seen. The first copious hæmorrhage from the bowel was followed by a rise of pulse-rate from 112 to 140 and a general change for the worse in the patient; it had been apparent, however, for some days that the weakness was greater and the anæmia more intense than so mild an attack of typhoid fever would itself account for. Eventually she became extremely blanched and died from exhaustion on Dec. 18th.

Necropsy.—At the post-mortem examination, which was made by Dr. H. D. Rolleston, the blood was found to be generally fluid though the cavities of the heart contained pale clots. The pleural cavities were closed by old adhesions, but the pericardium and peritoneum showed numerous petechiæ, and beneath the endocardium of the right auricle was an extensive hæmorrhage. Hæmorrhages were found also under the capsules of the liver and spleen, under the mucous coats of the bladder and stomach, in the pelves of both kidneys, and in the right Fallopian tube. In the ileo-cæcal region there were many ulcers, some of which were not far from perforation. These ulcers were undoubtedly of typhoid origin, though the edges were less infiltrated and undermined than usual. The colon and rectum were vividly injected but were not ulcerated.

Remarks by Dr. LEE DICKINSON.—In THE LANCET of April 20th, 1901, p. 1156, there is an interesting annotation upon a paper by Dr. A. E. Eshner and Dr. T. H. Weisenberg in the *American Journal of the Medical Sciences* for March on Hæmorrhagic Typhoid Fever. The paper describes two cases of this exceedingly rare complication of typhoid fever, and the annotation suggests that alcohol, to which both the patients were addicted, was an important contributory cause of the hæmorrhagic condition. The above case may therefore be of interest, for it was a marked example of hæmorrhagic typhoid fever and one, moreover, into which the alcoholic factor did not enter. It seems equally certain that true hæmophilia may be excluded in so far as the term "hæmophilia" connotes a congenital tendency to hæmorrhage; but that many and various hæmorrhages took place and that they were in some way connected with the typhoid fever and directly dependent upon deficient coagulability of the blood is beyond all question.

The case occurred nearly nine years ago, since when certain therapeutic advances have been made in the direction of promoting the coagulative power of the blood when deficient, but whether the administration of any such substances as calcium chloride, nucleo-proteid, gelatin, and the like can be of material use when, as seems probable, the cause of the hæmorrhagic condition is a toxin in the blood may well be held as doubtful. In the future we may perhaps look more hopefully to some form of antitoxin treatment which will so far surpass the treatment at present in vogue for the prevention of typhoid fever as to neutralise at once the established disease and the general tendency to hæmorrhage, which is one of its rarest and most terrible dangers. Although the case is barren as regards therapeutic suggestion it seems to the point on the present occasion, and for this reason I venture to submit it to the profession. I am indebted to Dr. Ewart for kindly allowing me to make use of the clinical records of the above case for which, as medical registrar at the time, I am entirely responsible.

SOUTH DEVON AND EAST CORNWALL HOSPITAL.

A SUCCESSFUL CASE OF LAPAROTOMY FOR INTUSSUSCEPTION.

(Under the care of Mr. C. WHIPPLE.)

THE value of early operation in intussusception is now generally acknowledged, and the increasing number of cases recorded confirms it. If we were to judge of the mortality after the operation by the cases published a decidedly erroneous opinion would be formed, for in this as in most other operations a larger proportion of the successful than of the unsuccessful cases find their way into print. If we take all the cases in a large hospital in which an operation is performed for intussusception we find a death-rate which is decidedly higher than that based on recorded cases. The mortality after operation need not deter us from operating, though it should impress on us the need of early operation, for the death-rate increases with the duration of the invagination.

A girl, aged two years, was admitted into the South Devon and East Cornwall Hospital on May 30th, 1901, for vomiting and abdominal pain. The history of the case was that she had been suffering from "ulcerated bowels" for the previous fortnight. On May 29th, about 9 P.M., the child was attacked with sudden acute abdominal pain; she cried a good deal and vomited. On the 30th, about 3 A.M., the bowels acted, the motion being dark and slimy, "like tar." The patient

passed two similar motions afterwards, the second being at 3 P.M. The vomiting continued up to the time of admission in the evening.

On examination the abdomen was found to be slightly distended and tense from muscular action, but a firm elongated mass of characteristic "sausage"-shape could be felt in the situation of the transverse colon. Nothing abnormal was found on rectal examination. The pulse was 94 and the temperature was 99° F. At 10 o'clock the child was anæsthetised with chloroform (later in the operation a little ether was given). When under its influence the mass could be distinctly defined extending towards the right loin. The abdomen was opened by a three-inch incision slightly to the right of the middle line and the mass was drawn out on to a warm sterilised towel; it was found to be an ileo-cæcal intussusception. Reduction was effected with slight difficulty, a small peritoneal tear in the ascending colon requiring two Lembert's silk sutures. There were considerable œdema and a little lymph about the cæcum. About six inches of ileum and six inches of cæcum and ascending colon were intussuscepted. The extruded portions of bowel were washed in warm sterile saline solution and returned to the peritoneal cavity. The peritoneal incision was then closed with a continuous catgut suture and the wound in the abdominal wall was closed with interrupted sutures of salmon gut. The operation lasted 20 minutes. On May 31st the morning temperature was 101·6° and the evening temperature was 98°. The child's bowels acted twice, the motions being loose and yellowish. She was fed with two drachms of milk with two drachms of hot water every hour. On June 1st the temperature was normal. As the child cried a little boiled soft bread was added to the milk-and-water, the quantity of which was doubled. The bowels acted three times. On the 3rd the diet consisted of boiled bread with milk and tapioca pudding and milk. The bowels had acted once. On the 6th the wound was dressed and was found to be soundly healed; the stitches were removed.

Remarks by DR. H. W. WEBBER.—I am indebted to Mr. Whipple for permission to operate on this case and to record the notes, and I am glad to be able to add one more to the number of successful laparotomies for intussusception. Operative treatment seemed to be distinctly indicated in this case as the condition had lasted 25 hours, by which time adhesion between the peritoneal surfaces would be commencing and œdema present—as was actually found, and the child's good pulse and general condition gave hopes that she would bear the operation well.

Medical Societies.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

Resection of the Intestine.—General Paralysis of the Insane.

A MEETING of this society was held on June 5th, Dr. A. G. MILLER, the President, being in the chair.

Dr. F. M. CAIRD read a paper on Resection and Suture of the Intestine, with special reference to Strictures of the Large Intestine. This communication might be regarded as supplementary to one read in the society in 1895 (Vol. xiv. of the Transactions) and was intended to give the results of further experience.

Dr. LEWIS C. BRUCE of Murthly Asylum read a paper on Clinical and Experimental Observations upon General Paralysis. It was necessary, he said, to define general paralysis as a disease marked by progressive degeneration of all the bodily and mental functions, commencing first with those most highly developed and recently acquired and ending with complete wreckage of mind and body. The course of the disease varied greatly according to individual resistance. Some showed mental symptoms before motor symptoms became prominent, while others presented motor symptoms sometimes for years before any mental peculiarities developed. The disease was regarded as incurable, but remissions often of a very complete nature were by no means uncommon. The typical disease was further peculiar in having several stages: (1) the first stage, in which the patient was often acutely ill with febrile temperature, loss of body weight, restlessness, excitement, and sleeplessness; (2) the second stage, in which he became fat, facile, lazy, and liable to congestive seizures; and (3) the third stage in which the patient again lost weight and became mentally demented and physically paralysed. The opinion that syphilis, if not the only cause, was certainly one of the chief, was at present gaining ground both in this country and abroad. The following observations were made upon patients suffering from undoubted general paralysis and might be classified as (1) those observations made on patients where the disease was steadily progressive; (2) those made in patients in a state of remission; and (3) those concerned in an attempt to produce remission. 1. In those in whom the disease was progressive the system which Dr. Bruce believed to be invariably affected throughout the whole course of the disease was the alimentary system. He had never met with a case in which there were not intestinal or gastric disturbances. In the second stage bulimia was generally added to the symptoms of the first stage, while in the third and last stage constipation alternately with diarrhœa was the rule. The significance of these symptoms had not been appreciated nor had it been realised that they ran from the beginning to the end of the disease, as they were so often masked by the mental symptoms. After quoting various authorities regarding the temperature in cases of general paralysis Dr. Bruce stated that he had carefully observed the temperatures of such cases for several years, making continuous charts of from four to six months' duration. In some few steadily progressive cases the temperature never rose above the normal. In others the temperature was irregular, febrile attacks occurring at long intervals. Such might be explained by the powers of individual resistance. As a result of his observations he supported strongly Dr. McPherson's opinion that the most characteristic temperature in general paralysis was the recurrent febrile attack every one or two weeks. On admission of the patient there was probably a febrile temperature of about a week's duration; then there was a remission for about three weeks, when again there was a febrile attack with or without mental symptoms, followed in turn by a remission of a month's duration it might be. When the second stage was established these febrile attacks became more frequent and the remissions shorter. As this stage passed slowly into the third stage the temperature tended to become subnormal, the febrile attacks of the second stage being represented by a gradual rise from subnormal to normal. The explanation was that the patient was becoming exhausted and did not react so vigorously as before. When the third stage was fairly entered the temperature became very irregular (the consideration of fever due to congestive seizures or apoplectiform attacks was purposely omitted as merely complicating matters). The constant recurrence of such febrile attacks could only be regarded as being due to some recurrent cause and that a toxic cause. Each febrile attack represented the resistive reaction of the body to some toxic substance and each interfebrile period an intermission when the resistive powers of the patient had subdued the action of the toxin. Kanthack considered it a rule that "previous to recovery from bacterial products an increase in the number of leucocytes takes place." Dr. Bruce counted the leucocytes and took the temperature daily of some six cases of general paralysis for three or four months continuously and a glance at the charts showed that every rise of the thermometer occurred with a similar rise in leucocytes. In the first stage the hyper-leucocytosis was often very great, being from 20,000 to 30,000 per cubic millimetre, and the higher and larger the leucocytosis the longer was the remission that followed the attack. In the second and early third stage the leucocytes still rose with each rise of temperature, but the reaction was not so vigorous and the remissions were shorter. In the later period of the third stage the leucocytosis resembled the temperature in being very irregular but not necessarily coinciding. There were practically no periods of remission. Even in those progressive cases where there were no recurrent febrile attacks there were still occasional instances of hyper-leucocytosis. These latter coincided with periods of advance in the disease, and following on these periods of hyper-leucocytosis there were remissions just as happened in those cases with febrile attacks. In one case of acute early general paralysis Dr. Bruce, while examining a fresh specimen of blood, found a motile bacillus. A film specimen showed apparent streptococci. Dr. Ford Robertson confirmed these observations. The urine of this patient contained blood and

in it was found the same motile organism. This was the only case of general paralysis in which Dr. Bruce had found living organisms in the blood. He regarded it as an accidental occurrence, but one which might occur much more frequently than was supposed. As this motile bacillus resembled the bacillus coli Dr. Bruce tested the blood serum of the cases of general paralysis to see if they had the power of agglutinating bacillus coli. The serum from 10 such cases was tested in dilutions varying from one in five to one in 20 and no reaction was obtained. 2. Observations made upon patients in a state of remission had to be divided as follows: (1) remissions which followed upon acute attacks of intercurrent disease, as after erysipelas of the scalp, pneumonia, carbuncle, &c. Such were preceded by a high and continued hyper-leucocytosis. (2) Remissions which occurred naturally and without obvious cause during the course of the disease. In those cases where Dr. Bruce had observed actual improvement to take place he noted that the powers of the alimentary system improved. The temperature was never febrile, but the chief feature was that the number of leucocytes in the early stage of the remission rose higher than they were in ordinary health (from 9000 to 12,000 per cubic millimetre). As the remission became fairly established the leucocytosis gradually fell to that of ordinary health. The serum also of such cases contained some antitoxic substance which was not present in patients in whom the disease was progressive or in the serum of healthy persons. The power of the blood serum to agglutinate bacillus coli in dilutions varying from 1 in 5 to 1 in 20 was tested in 10 cases in states of remission and seven gave a definite agglutinative reaction. Nature then appeared to check the disease and produce remissions by firstly producing a hyper-leucocytosis, the leucocytes in their turn producing some substance of the nature of an antitoxin in the blood which protected for a limited time against further doses of the toxin. 3. In attempts to produce remission the observations which Dr. Bruce made led him to believe that the majority of cases of general paralysis were due to toxic poisoning derived from bacteria and absorbed through the stomach or intestines. He believed that each febrile attack represented the actual entrance of bacteria or their toxins into the blood or tissues and that during the remission periods the blood must possess some antitoxic substance. He tested the truth of this as follows. A patient suffering from general paralysis in the second stage and during a well-marked remission had an attack of lumbago. This patient was wet cupped with antiseptic precautions and the blood so obtained was defibrinated. Two earlier and progressive cases of general paralysis were placed in bed and into each were subcutaneously injected two cubic centimetres of this defibrinated blood daily for three weeks. Patient No. 1 was in the early first stage; patient No. 2 was in the early period of the second stage. Patient No. 1 became so far recovered that his friends insisted on his discharge and he accordingly left the asylum. The treatment was adopted two years ago, and though his mental condition was impaired this patient could support himself as a saddler and had done so since his discharge. Case No. 2 had shown physical but no mental improvement, though the progress of the disease in his case had been definitely arrested for nearly two years. Four other cases of general paralysis, contemporaries of these two so treated patients, were now dead, and it was suggestive that these two men should have given the reaction they had done to treatment. It was obviously impossible to continue treatment on these lines, but Dr. Bruce believed that the blood of patients in conditions of remission could agglutinate the bacillus coli, that small subcutaneous injections of blood serum from a horse immunised to bacillus coli continued for from three to four weeks might produce artificial remission in the disease, and Dr. Bruce was giving this treatment a trial. His conclusions were (1) that general paralysis was a disease directly due to poisoning by the toxins of bacteria whose point of attack was through the gastric and intestinal mucous membrane; (2) that the poisoning was probably a mixed one, but that the bacillus coli was apparently one of the noxious organisms; and (3) that the result of treatment with serum taken from a case of general paralysis in a condition of remission and injected subcutaneously into an early progressive case pointed strongly to the fact that some form of serum treatment was the proper one for this disease.

Dr. FORD ROBERTSON read a paper upon New Observations bearing upon the Question of the Pathogenesis of General Paralysis of the Insane. He stated that his own studies upon this question, pursued chiefly along the lines of pathological anatomy, lead him to conclusions in entire agreement with those formulated by Dr. Lewis C. Bruce. What was still disputed was not the fact of the toxic origin of the disease but only the mode in which the toxins acted. He explained the grounds upon which he was unable to agree with the conclusion of Mott and Krafft-Ebing, that general paralysis depended upon a premature involution of the cortical nerve cells, and he defended the opinion of Angiolella that the disease was the result of a chronic toxæmia which especially damaged the vessels of the central nervous system. The accumulated evidence in support of the latter view was now beyond all question exceedingly strong. The vessels of the central nervous system had special structural features which served to explain why they were specially prone to be injured by certain forms of chronic toxæmia. He referred to the numerous observations which showed that general paralysis had a remarkable association with various forms of bacterial infection, and that important gastro-intestinal disorders constantly accompanied the disease. He then described his own observations upon the condition of the liver and gastro-intestinal tract in a series of cases. In the liver there was constantly evidence of long-standing irritation of the fibrous tissues of the portal spaces. This fact pointed distinctly to the absorption of irritants from the alimentary tract. In all of 12 cases systematically examined he found various chronic lesions of either the stomach or intestines. Chief among these was a chronic catarrhal state of the stomach and duodenum and lower part of the ileum, associated with thickening and erosions of the mucous membrane. There was strong evidence that the changes observed were the result of the action of an irritant which bathed the internal surface. He thought that the view that they were the result of the cerebral condition was quite untenable. Nevertheless, these gastro-intestinal changes were not the cause of general paralysis but the result of the same toxic action as that which gave rise to the other lesions in various parts of the body. When all the facts that had been ascertained were taken into account two conclusions seemed to him to be justified—namely (1), that the toxæmia of general paralysis was of gastro-intestinal origin, and (2) that the toxins were mainly bacterial. There was evidently a partial breakdown of those forces by which any harmful development of the intestinal organisms was normally prevented. He discussed the question of how the inhibition of the growth of these bacteria was normally effected, and he insisted that the phenomenon could only be explained as essentially the result of the same forces as those by which the growth of bacteria was prevented in the living tissues—namely, by the action of leucocytes, alexins, and antitoxins. There was conclusive evidence that in the general paralytic, even at an early stage of his disease, there was a weakening of the natural resistance to bacteria or of the natural immunity. Such weakened power of resistance would manifest itself specially in the alimentary tract in which the inhibitory substances were in a state of comparative dilution. The toxæmia was probably in some measure established for months, or even years, before the first symptoms of nervous disease manifested themselves. In some individuals the cerebral vessels gave way earliest, and general paralysis was the result; in others, the vessels of the cord were the more vulnerable, those that received the largest quantity of blood and therefore of toxin suffered first and most severely, and the clinical and pathological picture of tabes dorsalis developed. He advanced the hypothesis, against which he knew many as yet unanswerable arguments could easily be brought, that the alteration in the general immunity was dependent upon commencing exhaustion of the leuco-blastic functions of the bone marrow. He pointed out how this hypothesis would explain certain very contradictory facts regarding general paralysis and tabes. The factors which were known to favour the development of these two types of nervous disease were for the most part such as caused prolonged leucocytosis.

Dr. T. S. CLOUSTON said that the study of general paralysis was perhaps the most interesting in the whole range of medicine. He thought that the results of the work now laid before the society were (if substantiated further) epoch-making. For the first time in 40 years he had a feeling that this disease might be cured. He was not convinced that the disease was a vascular one but held it to be almost certainly proved that it was of a toxæmic nature. The disease seemed to begin in the highest centres of the brain

and the progressive degeneration spread to every other centre of lower natures. He thought it was perfectly consistent with the toxæmic theory that the neurons were in the first place affected and the capillaries later.

Dr. BYROM BRAMWELL stated that syphilis was the most important element in the causation of general paralysis and tabes dorsalis, but some irritant or strain must be added to this to determine the disease. He thought that Dr. Bruce and Dr. Robertson were perhaps limiting the causation too much. It seemed to him that various forms of irritation might act on the nervous centres which had been already acted on by the syphilitic poison. Else why did the toxin not produce the disease in individuals who had not had syphilis?

Dr. WILLIAM RUSSELL said that a point of interest to him was the occurrence of leucocytosis during the febrile periods in the course of general paralysis. He regarded it as proof of a toxæmia. With regard to Dr. Robertson's contentions, there was a point which the pure pathologist was apt to overlook and that was the perturbation of function which preceded anatomical changes. In some cases he was satisfied that this occurred and that general paralysis supervened upon domestic and business worry with long days of work and short nights of rest and in persons, too, who never had syphilis. Following upon this functional perturbation came anatomical changes and he thought it very dangerous to assert, unless the evidence was very strong, that the vascular changes were primary and the surrounding sclerosis secondary. In various morbid conditions a local disturbance with the production of irritative products led to local endarteritic changes, and yet there might be no question at all that the vascular changes were secondary.

Dr. GULLAND, Dr. MCPHERSON, and Dr. JAMES RITCHIE also spoke and Dr. BRUCE and Dr. ROBERTSON replied.

DERMATOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.—A meeting of this society was held at 20, Hanover-square, W., on June 26th, the President, Dr. A. J. Harrison, being in the chair.—Dr. H. Radcliffe Crocker proposed that a vote of condolence should be conveyed to the family of the late Dr. Cavafy on his death, and referred to the serious loss sustained by the society and by British dermatology in his death. The vote of condolence was passed unanimously by the meeting.—Dr. T. D. Savill showed a case of Bromide Eruption in a child, aged five and a half years, who had been under the care of Dr. Fletcher Beach and had been given 15-grain doses of potassium bromide thrice daily for 19 days.—Dr. Phineas S. Abraham showed: 1. A case of Lupus Vulgaris in a child, aged 13 years. The eruption had improved rapidly under treatment with x rays. 2. A second case of Lupus which had benefited by the same treatment.—Dr. E. G. Graham Little showed: 1. A case of Favus in a young lad, a Russian Jew; there were typical yellow scutula on the scalp and extensive loss of hair. 2. A case of Leucodermia and Melanodermia combined of four years' duration in a boy, aged 12 years. 3. A case of Hypertrophy of the Upper Lip in a boy aged 10 years; the swelling had been present for the last five months. There was a strong tuberculous history and it was possibly a tuberculous swelling. 4. A case of Multiple Lupus Vulgaris with a distribution and aspect of psoriasis and in addition an eruption of lichen scrofulosorum on both legs.—Dr. Graham Little also showed a microscopic specimen of a Favus Hair which was stained to demonstrate the invasion of the hair-shaft by the typical fungus.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.—The following members have been elected as officers and councillors for the year 1901–1902:—President: Mr. W. A. Maggs. Vice-Presidents: Mr. A. S. Underwood, Mr. F. J. Bennett, and Mr. W. H. Woodruff (resident); Mr. G. Brunton (Leeds), Mr. W. S. Woodburn (Glasgow), and Mr. W. B. Bacon (Tunbridge Wells), (non-resident). Treasurer: Mr. C. F. Rilot. Librarian: Mr. H. Baldwin. Curator: Mr. J. F. Colyer. Editor of Transactions: Mr. H. Lloyd Williams. Honorary Secretaries: Mr. J. H. Mummery (Foreign), Mr. A. Hopewell Smith (Council), and Mr. W. Rushton (Society). Councillors: Mr. J. H. Reinhardt, Mr. H. G. Read, Mr. G. Northcroft, Mr. R. Wynne Rouw, Mr. J. Mansbridge, Mr. M. F. Hopson, Mr. Morton A. Smale, Mr. R. D. Pedley, and Mr. J. Percy Smith (resident); Mr. D. Corbett, jun. (Dublin), Mr. Rees Price (Glasgow), Mr. G. O. Whittaker (Manchester), Mr. T. Mansell (Birkenhead), Mr. W. A. Rhodes (Cambridge), Mr. W. Glaisby (York), Mr. J. J. H. Saunders (Barnstaple), Mr. E. A. Bogue (New York), and Mr. J. F. L. Pike (Sheffield), (non-resident).

Reviews and Notices of Books.

A Text-book of Pharmacology and Therapeutics, or the Action of Drugs in Health and Disease. By ARTHUR R. CUSHNY, M.A., M.D. Aberd., Professor of Materia Medica and Therapeutics in the University of Michigan. Second edition. London: Rebman, Limited. 1901. Pp. 732. Price 17*s.* 6*d.* net.

WE noticed the first edition of Professor Cushny's work in our issue of April 20th, p. 1146. There is but little more to say about this, the second edition. Although the title on the cover is simply "A Text-book of Pharmacology," the title-page bearing the more extended name given above, yet the book deals with pharmacology, therapeutics, toxicology, and materia medica, but the interest is so largely centred upon the first mentioned that it is quite an appropriate name to select. The volume includes references to all the drugs and preparations which are official in the United States Pharmacopœia and the British Pharmacopœia, and it is worthy of note that preference is expressed for the use of the metric system, although both systems of weights and measures are given.

With regard to therapeutics the author's position is very clearly stated. He treats the subject from the experimental standpoint and makes the results of the laboratory investigator the basis of almost every statement, and he objects to the use of such terms as "alterative" or "tonic" which refer to hypothetical conditions which cannot be established by direct experiment.

As a text-book of pharmacology this work is very complete and very satisfactory. The author has read widely and has incorporated the results of his reading with admirable lucidity and brevity, while at the end of each section he has enumerated references to more detailed sources of information. His direct and dogmatic style should facilitate the employment of this book by students, even though it occasionally represents only one side of a disputed subject. The arrangement adopted is that of Buchheim and Schmiedeberg, the drugs being grouped into classes named from the most prominent member or from some marked property possessed by all. In this way much needless repetition is avoided and students instinctively recognise the more important facts concerning each individual member of the group, although the actions of each are fully given.

The drugs selected are principally those which are official, and naturally the greatest space is devoted to those which possess well-marked actions, such as quinine, digitalis, atropine, and nux vomica. Although these are treated in great detail many of the newer remedies receive adequate recognition, as, for example, anhalonium, heroin, urotropin, eucaine, and orthoform. On the other hand, the author's caution is well shown in the following remarks (p. 683) upon some of the newer antiseptic astringents: "As with so many of the products of the new industrial chemistry, they are thrown on the market in such profusion, and are heralded with such exaggerated praise, that it is impossible at present to state which of them are really improvements on the more generally recognised preparations, and which are merely adapted to enrich the inventor, without materially advancing therapeutics."

Professor Cushny is to be congratulated upon having presented a difficult subject in an attractive manner. This book should do much to promote an intelligent scientific employment of drugs and to discourage antiquated empiricism which has so long retarded progress. The book is well printed and is provided with a satisfactory index.

On Some Practical Methods of Sanitation in India, with Special Reference to Cantonments. By ERNEST ROBERTS, D.P.H. Cantab., Major, I.M.S. Reprinted from the Scientific Memoirs by Medical Officers of the Army of India, Part XII. Simla: Printed at the Government Central Printing Office. 1901.

THE introduction of a system of treating sewage after the method pursued by nature and on what may be termed biological principles has been one of the practical results attending the investigation of the rôle played by mixed communities of micro-organisms in their action on the waste organic matter which is continually being received upon the surface of the earth in order to restore it to its original elements. Nature's method is effected, as we know now, in two stages—by the breaking down and liquefying of the solid organic matter and by the subsequent nitrification or mineralising of the results thus obtained. Both are accomplished by the instrumentality of organisms consisting of anaerobia and aerobia, according as oxygen is essential or not to their existence. While both classes of organisms share in the liquefying process it is the latter (the oxygen-requiring organisms) that alone do the work of nitrifying or mineralising the liquefied sewage products.

The object which the author has in view is, in the first place, to review the practical methods of sanitation in vogue in India and to examine the adequacy and scientific sanction of these methods, and in the second to set forth and to elucidate the merits and main points and principles of the biological system of sewage purification while offering some practical conclusions and suggestions on the subject generally. The pamphlet, which is an elaborately drawn up and well-reasoned production, is a reprint from Part XII. of the Scientific Memoirs by medical officers of the army of India and it consists of 158 pages together with an appendix and illustrative plans. It deserves to be read as a whole, for it does not lend itself to any brief summary. Major Roberts starts by referring to a subject about which the readers of THE LANCET need not be reminded—namely, the scourge which enteric fever has proved to our troops serving in India despite all that has been done to prevent or limit its spread. There has been of late a growing belief that the dry-earth and trench system of conservancy carried out in hot climates has a good deal to answer for in this respect. The dry earth sewage system only deals with latrine matters and does not remove, like a water carriage system, all the sewage products of a population or community. However efficiently worked it simply reduces or abolishes nuisance, but it does not reach the causes of disease; on the contrary, as carried out in India and South Africa, for example, by the latrine matters fouling the surface soil and possibly the subsoil water and by getting blown about as dust by the wind or carried in dust storms or by flies it possibly disseminates them.

Major Roberts, while recognising that this may not be inappropriately designated nature's method where it is carried out with the most scrupulous regard to all the essential conditions, very forcibly points out how this is not, and practically speaking cannot be, done, at any rate as far as India is concerned, where special difficulties exist and special risks and dangers are incurred, so that it amounts to this—that, to say nothing of the great difficulty of conveyance to the trench and the chances of leakage at every stage, he condemns the present system of latrines and earth disposal as really no system, because it has demonstrably failed in the essential points which it has to fulfil. The remedy for all this, in Major Roberts's opinion, is the biological method, the aim and object of which is to recognise the respective parts played by bacterial organisms, to claim and utilise them as allies, and to appropriate them to their special work by adjusting the conditions for securing their rapid multiplication and working efficiency in such order and sequence as to be best fitted for obtaining their efficient coöperation in sewage purification. There are various methods of doing this, but they all depend upon one and the same principle. There can be no doubt about the success of the method so far as our present knowledge and experience extend. The biological system depends upon water-carriage and water is not always obtainable in hot countries, and, so far as India is concerned, Major Roberts discusses and deals with this point. How far it is capable of destroying specific pathogenetic micro-organisms has not, perhaps, as yet been sufficiently determined experimentally. The trend of the experiments undertaken by Dr. Houston for the London County Council shows a diminution in numbers of pathogenic bacteria and a weakening of their powers, but direct evidence is yet wanting as to whether they are actually extinguished in the biological processes of sewage treatment. Major Roberts's pamphlet comes at a very opportune time. We cannot now discuss the point as to whether or not the harmful microbes can survive the biological treatment and the attacks of other microbes, but we may say that we concur in thinking it would be well to have recourse also to land irrigation—that is, to run the effluent thus obtained over land (which should be cropped) instead of into a watercourse or nullah, with the view, not only of avoiding the waste of a valuable manuring agent, but in order to make assurance doubly sure. Where the biological process for liquefying and nitrifying sewage is thoroughly followed the organisms are found to multiply remarkably in number and in working efficiency, sludge is got rid of, and the resulting effluent, from the surplus oxygen stored up in it, does not seem prone to undergo secondary putrefaction. Major Roberts points out the marked differences in the character and strength of the sewage in India and in England respectively. He prefers, on the whole, the Scott-Moncreiff plan of open upward cultivation tank for anaerobic liquefaction and solution of the solids. His description of the conservancy system and of the methods of sewage disposal as followed and worked in India at the present time brings out the existence of many defects and leakages of detail and shows that a good deal still remains to be done in that country in view of remedying these and in designing and developing a more perfect system for the future. His pamphlet is written in a scientific tone and is by no means lacking in practical proposals. There are a great many points of detail on which there are differences of opinion about upward or downward action and as to whether the septic tank alone or a series of biological filters should be employed, and there are other matters of a technical sort which will probably turn on local and other conditions and considerations and the results of further experimentations, but Major Roberts has meanwhile, we think, done very good service in calling attention to the subject.

A Treatise on Medical Jurisprudence. By GEORGE VIVIAN POORE, M.D., F.R.C.P. Lond., Professor of the Principles and Practice of Medicine, University College, London. Illustrated. London: John Murray. 1901. Pp. 530. Price 12*s.*

THIS treatise is based on lectures delivered at University College, London. We are informed by the author in his preface that the lectures were taken in shorthand for the *Clinical Journal* at the request of its editor, and for the purposes of the present work considerable additions and emendations have been made and the matter has been divided into chapters. As a result the style throughout the book is more colloquial than is usual in such a publication, and is all the more acceptable for that reason, as we are thereby presented more exactly with the thoughts and intentions of the lecturer. Rarely have we found a text-book more charming to read and at the same time displaying such a thorough grasp and knowledge of the subject. By means of the free employment of illustrative cases, drawn from the records of the law courts and the author's personal experience, the dry details are endowed with lively

interest which is likely to imprint them on the student's memory. We thoroughly endorse this plan.

In the first chapter minute directions are given as to the line of conduct that a medical witness should adopt whilst under examination. A barrister will do his utmost to try to confound a medical man whilst giving evidence, but if the latter has carefully considered the case from every point of view he will be enabled to hold his own against any crafty pitfall prepared by skilful and experienced counsel. Dr. Poore gives excellent advice on this subject, and if the practitioner carefully studies this chapter and applies all the advice and suggestions therein contained he need fear neither examination nor cross-examination. Some medical witnesses, especially the younger ones, are occasionally tempted to take a biased view and to try to appear learned about a thing that they know little or nothing about, when cross-examination is apt to become unpleasant. A practitioner should take to heart the following sentence: "If you are perfectly truthful and simple, and, let me say, think of your own reputation, not only for knowledge, but for honesty and truthfulness, you need not fear any cross-examination." Implicit directions are likewise given with regard to dying declarations. It is strange that so many errors are made in taking such declarations. The laws which govern them are explicit and simple, and yet again and again a prosecution breaks down owing to the neglect of the most elementary precautions. The chapter on the Legal Relations of the Medical Profession, containing remarks on the Medical Acts, the General Medical Council, the privileges of medical men, the relation of doctor to patient, malpraxis, the vaccination laws, &c., will be found highly interesting.

Chapters III., IV., and V. are concerned with the signs of death and the examination of persons found dead, with especial reference to medico-legal investigations. The medical jurist is more concerned with the dead than with the living, and hence these preliminary considerations are of the utmost importance. Dr. Poore has the faculty of expressing facts in a very straightforward and plain manner, and there is no mistaking his aim. In a subject like forensic medicine this is especially advantageous. If a dead body is found and foul play is suspected it is, of course, of primary importance that the time at which death took place should be determined as closely as possible. The cases quoted by Dr. Poore to illustrate his remarks on this subject are well chosen, being always to the point and bringing into prominence the phenomena likely to prove of value in a legal inquiry.

In the section devoted to Toxicology the author has limited himself mainly to the discussion of such poisons as have been actually used for criminal purposes and has wisely abstained, as far as possible, from trenching upon the domains of the physiologist, the pharmacologist, and the medical officer of health. The symptoms, post-mortem appearances, and treatment of the various poisons are clearly described, and the many illustrative cases that are brought forward serve further to impress upon the student's mind the difficulties that may arise in regard to differential diagnosis. The manner, too, in which the tests for the poisons are described is striking and original. The lecturer's words were taken down verbatim as he was performing each test; by this means a much more graphic account is given than is usually found in text-books. In speaking of phosphorus poisoning Dr. Poore naturally draws attention to the difficulty in determining between this condition and acute yellow atrophy of the liver, and he comes to the conclusion that it is not possible to say with absolute certainty which of the two is present in doubtful cases. The chapter on Poisoning by Arsenic is an excellent one and contains most interesting accounts of the principal cases of criminal poisoning which have come before the courts. Some interesting remarks are also to be found in the chapter on Food-poisoning; ptomaines, leukomaines, the growth of fungi, and bacteria in food are all duly considered. The medico-legal aspects of sex, sterility, sexual crimes, pregnancy, delivery, abortion, and infanticide are then dealt with in a manner which places before the student and practitioner all the principal points upon which stress is laid when such matters come before the courts either in civil or criminal cases.

The subject of insanity is dealt with in a rather more exhaustive manner than is usually found in text-books on forensic medicine. By means of an admirable series of photographs the various types of insanity are illustrated. Dr. Poore divides insane cases into four classes—congenital insanity, toxic insanity, insanity due to cerebral disease, and symptomatic insanity. This is an admirable classification for dealing with the matter in a small space. The author then considers the "legal relations of the insane," the precautions to be taken when giving certificates being stated at length. The last chapter is entitled the Plea of Insanity in Courts of Law. Four distinct classes of cases are mentioned in which such a plea may be offered: (1) in criminal cases; (2) for divorce or nullity of marriage; (3) testamentary capacity; and (4) affective insanity. A knowledge of such matters may at any time be of the utmost value to a practitioner who may suddenly be called upon to give evidence where the sanity of a litigant is questioned.

Taking this work as a whole we offer our warm congratulations to Dr. Poore on having written one of the most readable and instructive manuals in medical jurisprudence yet published, and we feel sure that it will meet with the success which it deserves. We may add that a study of it would prove useful, not only to medical practitioners and students, but also to barristers who so frequently have to deal with cases involving medical details.

Die Pellagra. By Dr. VICTOR BABES and Dr. V. SION. Illustrated. (Third section of the twenty-fourth volume of Nothnagel's Special Pathology and Therapeutics.) Vienna: Alfred Hölder. 1901. Pp. 75. Price 3 marks 60 pfennig.

PELLAGRA is a disease of which we have little or no experience in England, since it is practically confined to such countries as Italy, Spain, Roumania, and South America, where maize constitutes a common article of diet among the poorer classes. Dr. Victor Babes, professor of pathological anatomy and bacteriology in the University of Bucharest, has had unique opportunities for the study of this disease and with the assistance of Dr. V. Sion has compiled for Nothnagel's Pathology and Therapeutics the very valuable contribution under review.

Not only have the authors brought their practical experience in the disease to bear upon the subject, but they have also drawn up a very complete bibliography and have incorporated in the text all evidence of importance which can help to elucidate this somewhat obscure disease. Although there appear to be certain authors who still cling to the theory that the disease is one which is due to inadequate diet, Dr. Babes, after critically reviewing all the evidence for and against this view, unreservedly declares in favour of the specific nature of the disease. He believes that pellagra is never caused by eating sound maize, and that it only occurs where the grain has previously been exposed to fermentative processes. The exact nature of the poison has not been determined; apparently it can be liberated by many different varieties of bacteria and other fungi. It is soluble in aqueous and alcoholic extracts, and can produce in animals when experimentally injected symptoms analogous to those seen in patients suffering from pellagra. Animals which have recovered from such injections possess in their blood substances which can confer passive immunity in other animals.

Although Dr. Babes believes that ultimately a sero-therapy

will be applicable in cases of pellagra occurring in man, he relies rather on prophylactic measures for the stamping out of the disease. Such measures should be adopted by the State and should take the form of active supervision in the production, storage, and distribution of the grain.

Perhaps the most interesting portions of this volume are those dealing with the pathology and etiology, but the chapters on the course and symptoms of the disease will be read with considerable interest by many in this country, owing to their similarity to those of other diseases with which we are more familiar, as, for instance, peripheral neuritis and certain degenerative diseases of the central nervous system.

Infant-Feeding in its Relation to Health and Disease. By LOUIS FISCHER, M.D. Illustrated. Philadelphia: F. A. Davis Company. 1901. Pp. 368. Price $1.50.

DR. LOUIS FISCHER'S object in undertaking this work on infant-feeding has been to gratify the desire of many of his students for detailed information on the most modern and approved methods in this branch of dietetics. With enormous practical experience and with a wide knowledge of the contemporary literature the author was apparently in an excellent position for preparing a handbook of this kind, and as a book of reference the result is in no way disappointing. From a literary standpoint as well as from the student's point of view it presents many deficiencies, the chief of which is an entire lack of method in the general and particular arrangement of the various subjects dealt with in the different chapters. The reader wanders from chapter to chapter in a vain attempt to unravel the most complete tangle of disconnected facts it is possible to imagine. The pages are full of inaccuracies and show evidence of being hurried through the press. Of somewhat questionable advantage, considering the avowed object of the book, is the author's impartial method of seeing both sides of every question. He seldom commits himself to unqualified approval or disapproval of any of the methods of feeding of which he gives particulars, and it is quite impossible to decide which method for general purposes is, in the author's opinion, best suited as a working basis. If cow's milk is used as a substitute for breast-feeding we are told that the less its "vital properties" are interfered with by physical or chemical manipulation the better will it be for the infant. For this reason sterilisation is objectionable and mechanical separation of cream is to be avoided. The so-called vital elements in milk can be absorbed without any process of digestion—hence one obvious advantage of unboiled milk. "Sterilised milk continually fed to the exclusion of raw milk or raw beef-juice will ultimately result in rachitis or scurvy"—a statement which is endorsed in a letter from Dr. C. Dukes published in our columns recently, which has become the subject of much correspondence. Many readers will hardly subscribe to Dr. Fischer's suggested method for the treatment of chronic constipation, which is as follows: "Inject half a tumbler of ordinary glycerine mixed with one pint of warm water. In safe hands, if the mother or nurse is intelligent, there should not only be no injury but positive good from the continued use." And on page 301 many readers will wonder what is meant by the following sentence: "Milk teeth remain until a child is a year old when they give place to permanent teeth."

Practitioners who take an intelligent interest in modern methods of infant-feeding will find this book of real value as a work of reference, but it is no book for inexperienced students or for those who have no previous knowledge of the subject.

LIBRARY TABLE.

Appendicitis: its Pathology and Surgery. By CHARLES BARRETT LOCKWOOD, F.R.C.S. Eng., Assistant Surgeon and Lecturer on Descriptive and Surgical Anatomy in St. Bartholomew's Hospital. London: Macmillan and Co. 1901. 8vo. Pp. 296. Price 10*s.* net.—If we were to judge by the increase in the number of works on this subject which have in the last year or two appeared from the press we should be inclined to think that appendicitis had become much more frequent of late. The explanation of the larger number of books on this disease is to be found rather in the greater care which is now being devoted to the study of appendicitis. A few years ago the operation, which has somewhat laboriously been termed "appendicectomy," was employed by some surgeons at least for almost every case in which the symptoms pointed to disease of this organ. At the present time, however, it is recognised that an operation is not needed in every case or even is not desirable. The more extended attention which the disease has received has enabled us to discriminate fairly successfully between those cases in which an immediate operation is imperative and those in which an operation would be not merely useless but harmful. The time of the operation is also a point of the greatest importance. The results of this increase of knowledge are evidenced by a manifest diminution in the death-rate, and we may look forward to a further improvement in this respect. The work before us deals with all the aspects of the disease and its treatment, and it is based on the records of 83 cases in which histological examinations have been made. Notes of all these cases are given and they serve to illustrate the chief features of the disease. A useful account of the normal anatomy and histology of the appendix will enable normal variations to be distinguished from morbid changes. The book is interesting and will well repay perusal.

Saunders's Year-book of Medicine and Surgery, being a Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery. Collected and arranged under the general editorial charge of GEORGE M. GOULD, M.D. In two vols. Surgery. London and Philadelphia: W. B. Saunders and Co. 1901.—The year-book issued under the editorship of Dr. George M. Gould has for the last five years occupied so well-recognised a position among such works that a hearty welcome for this year's issue is assured to it before its appearance. We find the same characteristic features which were so well marked in the earlier issues. Each branch of the subject has been entrusted to a writer who would be recognised everywhere as an authority in that department. Each sub-editor has epitomised the articles and papers which have appeared during 1900 and has in addition expressed his opinion on the value of the new operation or method described. We would draw the attention of our readers to the great value of these editorial comments—they add enormously to the interest of the work and serve to indicate those novelties which are indeed advances in our knowledge. The careful supervision of the general editor is visible everywhere, but it is nowhere more conspicuous than in the provision of a very complete index which occupies 48 pages in double columns.

The Students' Manual of Venereal Diseases. By F. R. STURGIS, M.D., some time Clinical Professor of Venereal Diseases in the Medical Department of the University of the City of New York. Seventh edition, revised, and in part rewritten by F. R. STURGIS, M.D., and FOLLEN CABOT, M.D., Instructor in Genito-Urinary and Venereal Diseases in the Cornell University Medical College; Genito-Urinary Surgeon to Bellevue Hospital, Out-patients' Department. London: Rebman, Limited. 8vo. 1901. Pp. 216. Price 6*s.* net.—The importance to those in general practice of a good knowledge of those diseases which are classed as venereal can hardly be over-estimated, yet the number of trustworthy handbooks on the subject is small. 21 years

have passed since Sturgis's Manual of the Venereal Diseases was first issued and it soon achieved as it deserved an extensive circulation in the United States. It is much less widely known in this country and therefore we take pleasure in commending to the attention of medical students this very practical treatise. For the articles on Chancroid and Syphilis Dr. Sturgis is responsible, while the chapters on Gonorrhœa were undertaken by Dr. Cabot. The work is well abreast of the times and the treatment advocated seems always to be judicious. The only criticism we would venture to make is that the account of the hypodermic medication in syphilis is unnecessarily brief, though we must agree with the author that the method is but little used in private practice.

Eczema, with an Analysis of 8000 Cases of the Disease. By L. DUNCAN BULKLEY, A.M., M.D., Physician to the New York Skin and Cancer Hospital, Dermatologist to the Randall's Island Hospitals, Consulting Physician to the New York Hospital, &c. Third edition, entirely rewritten. New York and London: G. P. Putnam's Sons. 1901.—This is the second of a series of works on Dermatology which Dr. Bulkley is bringing out, and eight more are promised. It is called the third edition of the author's work on Eczema and its Management, but the book has been entirely rewritten, so that but little remains of the original work. There is no more difficult skin lesion to treat than eczema, and this little volume will afford great aid to the youthful practitioner in dealing with this troublesome disorder. The greater part of the volume is made up of an account of the methods of treatment of the varied manifestations of the disease, and this account is trustworthy; and though there may be room for discussion on some of the points referred to there can be no doubt that the treatment is well described. A valuable list of 72 prescriptions is appended, though its length may serve to confuse the neophyte somewhat, as he may easily be at loss to know which remedy to choose among so many.

Photographic Atlas of the Diseases of the Skin. A series of 80 plates, comprising more than 100 Illustrations, with Descriptive Text and a Treatise on Cutaneous Therapeutics. By GEORGE HENRY FOX, A.M., M.D., Clinical Professor of Diseases of the Skin, College of Physicians and Surgeons, New York, Consulting Dermatologist to the Board of Health, New York City, &c. To be completed in 16 monthly parts. Parts 1, 2, and 3. Philadelphia and London: J. B. Lippincott Company. 1900 and 1901. Price 6*s.* each part, net.—Dr. George Henry Fox is well known on both sides of the Atlantic as a very successful photographer of skin lesions, and already he has issued several works illustrated by this method. Photography has its limitations when employed to represent skin diseases, as the reds and yellows generally come out nearly black. With some precautions these difficulties can be in part obviated, and Dr. Fox's results show how satisfactory the results can be. The reproduced photographs are coloured and give in most cases a very good idea of the disease. Each part contains five plates with descriptions, and also some pages of a very good account of the treatment of diseases of the skin. If all the succeeding parts are as good as those before us the atlas will be a valuable work.

Die Blennorrhöe der Sexualorgane und ihre Complicationen, nachdem neuesten Wissenschaftlichen Standpunkte und zahlreichen eigenen Studien und Untersuchungen. (*Gonorrhœa and its Complications.*) By Dr. ERNEST FINGER. With 36 Woodcuts in the Text and 10 Lithographic Plates. Fifth edition, much enlarged and revised. Leipsic and Vienna: Franz Deuticke. 1901. Pp. 434. Price 7m. 50.—This work by Dr. Finger is well known in this country. It has reached a fifth edition in 12 years and translations of earlier editions have appeared in English, French, Italian, and Russian. This issue has been extremely altered and enlarged and contains a very complete exposition of the present state of our knowledge of the pathology and treatment of gonorrhœa. This disease is looked upon by the public as the least important of all venereal affections. Our increasing knowledge makes it evident that gonorrhœa, though of slight severity and brief in duration, is not uncommonly productive of the most serious results, and rivals syphilis itself in the number and variety of its manifestations and complications. This is true of the disease both in women and in men; in fact, it is probable that the results are even more important and more far-reaching in the female than in the male. Apart from the avoidance of the chance of infection there is no measure of more importance than an early thorough treatment of the disease, and in order to be able to take the full advantage of the recent advances in treatment medical practitioners should make themselves fully acquainted with the latest therapeutic methods, and no safer guide can be found than this work of Dr. Finger.

Obstetric and Gynecologic Nursing. By EDWARD P. DAVIS, M.D. London and Philadelphia: W. B. Saunders and Co. Illustrated. 8vo. Pp. 402. 1901. Price 8*s.* net.—This book has been written for the training schools of the Jefferson and Philadelphia hospitals. It is divided into two parts, Obstetric and Gynæcologic Nursing. The subject is considered in great detail and the practice of antisepsis and asepsis is strongly insisted upon. The author has been very successful in limiting his information to the amount really required by nurses, and yet has omitted no essential detail. Professor Davis has followed the plan of taking nothing for granted, and therefore, even at the risk of repetition, he has not failed to insist again and again upon important points. In the nursing of midwifery cases the standard aimed at is that attained in most lying-in hospitals, and although we are inclined to think that in the case of the ordinary, cleanly middle-class patient such a standard is an unnecessarily high one, yet it is a good fault to insist upon too much rather than upon too little. Not only nurses, but even newly-qualified medical men, would learn a great deal and would acquire a good idea of what antiseptic and aseptic nursing really means by a perusal of this book. It is written in a clear and pleasant style and is a work which we can recommend. The illustrations are fair and the index is full and complete.

Transactions of the American Gynecological Society. Vol. XXV. For the year 1900. Philadelphia: Doneter. Pp. 470.—The twenty-fifth volume of the Transactions of the American Gynecological Society contains abundant evidence of the vitality of the society. Amongst the more important papers included in the volume are Dr. Engelmann's presidential address upon the American Girl of To-day; an Historical and Experimental Research upon the Anastomoses of the Ureter with the Intestine, by Dr. Peterson; the Evolution of My Technique in the Treatment of Fibroid Uterine Tumour, by Professor Howard Kelly; and an interesting paper upon the Relative Value of Vaginal and Abdominal Operations in the Extirpation of the Pelvic Organs, by Professor Richelot. The proceedings of the twenty-fifth anniversary at Marshall Hall are also given, and include addresses by Dr. Emmet, Dr. Skene, and Dr. Van de Warker.

The Penalty of Death: or, the Problem of Capital Punishment. By JOSIAH OLDFIELD, M.A. Oxon., M.R.C.S. Eng., L.R.C.P. Lond. London: George Bell and Sons. 1901. Pp. 268. Price 3*s.* 6*d.*—Mr. Oldfield has written an interesting work. He objects to the death penalty as being neither necessary nor just, and he had an ally in the person of the late Lord Chief Justice who, in answer to a letter which Mr. Oldfield wrote to him in common with other judges, said that

he was opposed to capital punishment. It is not very clear what Mr. Oldfield considers to be the best way of treating murderers, but apparently he would consent to life-long imprisonment with the death penalty to follow if the prisoner killed a warder. He quotes, presumably with approval, an opinion of Miss Skene, a lady who has devoted much time to the subject, that flogging joined to penal servitude would have a more deterrent effect than hanging. We have always argued that flogging is dreaded by the criminal classes and have recommended it for Hooligans who assault harmless passers-by and for the scoundrels who poison their neighbours by selling putrid meat and adulterated food, but if we remember aright we were met with a chorus of indignation from Mr. Joseph Collinson and other humanitarians to the effect that flogging brutalised both him who administered it and the person who received the flogging. Mr. Oldfield also argues (p. 177) that if we wish to prevent a murderer from again committing a murder it is not necessary to hang him, but that under an anæsthetic the chief nerves of his arms and legs could be severed and that in addition portions of his brain could be destroyed so that he would be rendered blind, deaf, dumb, and imbecile. He could then be handed over to the spiritual arm to save his soul. We do not suppose that Mr. Oldfield intends this argument as anything but a *reductio ad absurdum*, and as for the plea that the death penalty is irrevocable it is surely just as irrevocable to convert a man into a helpless imbecile paralytic. The hideous farce of solemnly pronouncing a death sentence in such cases as infanticide by young mothers which everybody, including the judge, knows perfectly well will never be carried out should most certainly be put a stop to.

JOURNALS AND MAGAZINES.

The Quarterly Journal of Microscopical Science. Edited by E. RAY LANKESTER, M.A., LL.D., F.R.S., with the coöperation of ADAM SEDGWICK, M.A., F.R.S.; W. F. R. WELDON, M.A., F.R.S.; and SYDNEY J. HICKSON, M.A., F.R.S. With Lithographic Plates and Engravings on Wood. London: J. & A. Churchill. New series, No. 175, Vol. XLIV. Pt. 3. May, 1901. Price 10*s.*—The first article in this number is by Gilman A. Drew, professor of biology in the University of Maine, Orono, Me., upon the Life History of Nucula Delphinodonta (Mighels). This is a minute mollusc belonging to the Arcidæ, a family of the unionidæ of the order asiphoniata. It is only about four millimetres in length and as it lives below low tide mark it is not very well known to collectors. These molluscs live well in aquaria. The development of this animal is carefully described from the first division of the ovum and the thrusting forth of the polar bodies to the adult stage. The illustrations are numerous and they enable the text to be easily followed. The second article is by W. G. Ridewood, D.Sc., F.L.S., lecturer on biology at the medical school of St. Mary's Hospital, London, on the Structure of the Hairs of Mylodon Listai and other South African Edentata. The hairs of the great ground sloth have no definite medulla, agreeing in this respect with cholæpus. They are destitute of the extra-cortical layer which characterises the hairs of bradypus and have not the fluted surface of the hairs of cholæpus. A plate contains figures showing the structure of the hairs. The third article is by Edwin S. Goodrich, M.A., Fellow of Merton College, Oxford, and is on the Structure and Affinities of Saccocirrus, with three plates. Saccocirrus is a polychæte worm. The fourth article is by George H. F. Nuttall, M.A., M.D., University lecturer in bacteriology and preventive medicine, Cambridge, on the question of Priority with regard to Certain Discoveries upon the Ætiology of Malarial Diseases. The fifth article is by H. M. Bernard, M.A. Cantab., on the Rods and Cones in the Frog and in some other Amphibia, with a plate showing the structure of their parts. The last article is by Sydney J. Hickson, F.R.S., Beyer professor of biology in the Owens College, Manchester, and is on Staining with Brazilin.

Analytical Records

FROM

THE LANCET LABORATORY.

(1) ELIXIR BROMYL; AND (2) MERCURAMINE.

(SQUIRE AND SONS, 413, OXFORD-STREET, LONDON, W.)

ELIXIR BROMYL is a red syrupy fluid with aromatic taste containing bromine in organic combination. The bromine is readily set free on adding nitric acid to the preparation. Each fluid drachm contains 10 grains of the organic bromide hexamethylenetetramine-bromethylate, which is obtained by adding ethyl bromide to an alcoholic solution of hexamethylenetetramine, this base being the product of formol acting upon ammonia. The dose of the salt is exactly the same as that of the metallic bromides. It is being used as a sedative and in epilepsy. It is said that this organic compound of bromine possesses all the therapeutic properties of the metallic bromides, while secondary effects are not induced, nor does "bromism" result from its administration. Mercuramine is a solution of an interesting organic compound of mercury and presents the same germicidal power as a 1 in 50 solution of mercuric chloride. It does not, however, coagulate albumin and has thus a decidedly increased penetrative action. It is particularly suitable for disinfecting the hands as it does not produce the irritating effect on the skin of corrosive sublimate. It is a clear, colourless fluid with an alkaline reaction. Hydrochloric acid gave a white crystalline precipitate soluble on heating. Potassium iodide gave a yellow precipitate which on heating turned into a light yellow oil. The salt is described as the ethylenediamine citrate of mercury. Both preparations serve to exemplify the advantages of combining well-known drugs like bromine and mercury with an organic rather than an inorganic molecule. Organic iodine and silver compounds, again, are further examples of the value of a similar association.

DIAZYME ESSENCE.

(FAIRCHILD BROTHERS AND FOSTER, NEW YORK AND LONDON.)

According to our experiments diazyme is a dilute alcoholic solution of the starch-converting enzyme combined with aromatics. It is quite pleasant to take and has a powerful digestive action. It is a clear limpid fluid of a light sherry colour. In spite of the presence of alcohol the enzyme present proved to have a rapid digestive action upon starch jelly. The preparation is both a digestive and stimulant.

NUTRINE BREAD.

(NICHOLAS HUTTER AND SON, 74, GOLDHAWK-ROAD, SHEPHERD'S BUSH, LONDON, W.)

This was a brown loaf free from irritating particles. It was of satisfactory uniform texture with good nutty flavour. The bread keeps well and moist for a considerable time. A mixture of wheats is selected, the choice being calculated to make the bread highly nutritious and digestible. Our analysis gave the following results: moisture, 47·80 per cent.; total proteids, 6·30 per cent.; starch, &c., 44·56 per cent.; and mineral matter, 1·34 per cent. Not the least important feature in this analysis is the excellent proportion of the normal mineral salts of cereals. Bread is too often

lacking in regard to these mineral ingredients in which the phosphates predominate. It is important that there should be mineral as well as purely organic food in bread.

TABLOIDS OF ERGOTIN AND STRYCHNINE.

(BURROUGHS, WELLCOME, AND CO., SNOW-HILL-BUILDINGS, LONDON, E.C.)

This combination in the tabloid form is of obvious value, especially having regard to the fact that the drugs selected are of exceptional purity. Each tabloid contains three grains of extract of ergot (ergotin), B.P., associated with one-thirtieth of a grain of sulphate of strychnine.

PIMELUM OINTMENT BASIS.

(BRADY AND MARTIN, NORTHUMBERLAND-ROAD, NEWCASTLE-ON-TYNE.)

Pimelum is a new and excellent basis for ointments. It is of satisfactory consistence, is spread readily, and is an undoubted aid to absorption and penetration. According to our examination it is free from fatty acids and it therefore cannot become rancid. We failed to saponify the basis, so that we may conclude that it is a so-called mineral fat. A great number of ointments of the B.P. strength are made with pimelum base. To mention a few there are pimelum with boric acid, with resorcin and sulphur, with ichthyol, and lastly pimelum with Lassar's paste (for eczema)—a mixture of zinc oxide starch and salicylic acid. The last is known as pimelum amyli compositas and is prepared in two colours, white or pink. Pimelum is an excellent excipient which will keep indefinitely, physically and chemically, under all variations of climate. By itself pimelum is a soothing and emollient unguent.

ALBARGIN.

(MEISTER LUCIUS AND BRUNING, LIMITED, 51, ST. MARY AXE, LONDON, E.C.)

Proteid silver compounds have been largely employed of late with advantage in diseases of the urethral canal in place of the ordinary silver salts. It is claimed that albargin, the newest member of the proteid silver series, is a distinct improvement on previous silver albumin compounds. Albargin is a compound of silver nitrate with gelatose containing 15 per cent. of the metal. It is stated to be free from the irritating tendency of other preparations, though it contains, as will be seen, a much larger proportion of silver than other organic compounds, and accordingly less concentrated and more easily flowing solutions may be employed. Flowing readily, it easily penetrates all parts of the urethral tract. It is easily diffusible. According to our examination albargin is a light brown sparkling powder, very soluble in water, giving a neutral solution; the proteid and the silver could be readily separated. The proteid molecule in albargin is said to be less complex than is the case in other silver albumin preparations. Gelatose, which is combined with the silver in this interesting preparation, is a product of dissociation of gelatin.

ROYAL V.O.V. SCOTCH WHISKY.

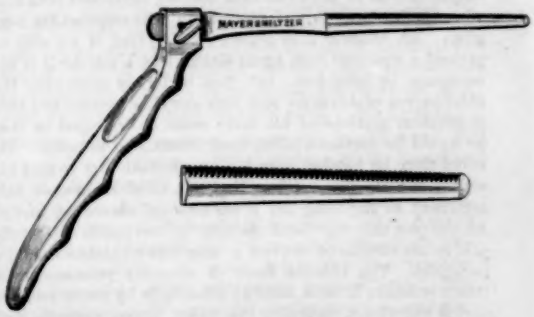
(MACFARLANE AND CO., LADY-LANE, PAISLEY.)

The results of analysis of this spirit were as follows: extractives, 0·20 per cent.; mineral matter, *nil;* acidity reckoned as acetic acid, 0·03 per cent.; absolute alcohol by weight 39·80 per cent., by volume 47·13 per cent., equal to proof spirit 82·59 per cent. We could find no trace of crude products in the whisky and the test for aldehyde, which includes, of course, furfural, was attended with negative results. All this is in favour of the statement that the whisky is 10 years old. It possesses practically no acidity, and having regard to its age the low amount of extractives is remarkable. It is a very pure spirit, somewhat marked in colour, with a good though mild malt flavour.

New Inventions.

A NEW NASAL SAW.

THOSE who have occasion to remove septal irregularities with a saw must be frequently annoyed by the slipping, jamming, or bending of the instrument. To obviate this nasal saws in general use have been made of thicker steel, but in so doing the cutting qualities of the instrument have been markedly impaired. To overcome these difficulties I have had a saw made for me the handle of which fits well to the palm of the hand, and owing to the fact that the handle forms with the blade almost a right angle an uninterrupted view of the operation is permitted. The blades are made with a bevelled edge, so that no matter what the thickness of the



blade may be the cutting edge is quite sharp. Two blades are supplied which fit into the same handle. They are applied with the plane surface next the septum; the one used to cut downward on the right side may by being reversed be used to cut up on the left, and *vice versâ*. The instrument has been thoroughly tried by the staff of the Central London Throat and Ear Hospital and has given every satisfaction. Messrs. Meyer and Meltzer of Great Portland-street, W., are the makers.

PERRY G. GOLDSMITH, M.D., C.M. Toronto,
Registrar, Central London Throat and Ear Hospital.

DURHAM UNIVERSITY MEDICAL GRADUATES' ASSOCIATION.

THE annual meeting of this association was held at the rooms of the Medical Society of London on June 27th, when the following officers were appointed for the year 1901–1902:—President: Dr. Frederick S. Palmer. Vice-Presidents: Dr. W. D. Arnison and Dr. Frederick Spicer. Members of the Council: Dr. Mitchell Bird, Dr. Charles Blair, Dr. Percy Jakins, Dr. T. Beattie, Dr. R. A. Bolam, Dr. E. W. Diver, Dr. J. W. Hembrough, Dr. Charles W. Chapman, Dr. W. G. Richardson, Dr. John Eyre, Dr. J. T. James, and Dr. A. Cox. Honorary treasurer: Dr. Selby W. Plummer. Honorary secretaries: Dr. H. Brunton Angus and Dr. T. Outterson Wood.

In the evening the members and guests to the number of 77 dined together at the Café Royal, Dr. Frederick S. Palmer, the President of the association, being in the chair. After the usual patriotic toasts had been proposed by the President he gave the toast of "The University of Durham," and Dr. Selby Plummer, a member of the Senate of the University, replied. Sir James Crichton Browne proposed in eloquent terms "Success to the University of Durham Medical Graduates' Association," recalling his connexion with the medical college where he was formerly lecturer on mental diseases, and Dr. H. Brunton Angus, the northern secretary, replied, congratulating the association upon its success, the number of members now reaching close upon 400. "The Health of the President" was proposed by Mr. Christopher Heath, "The Health of the Visitors" by Dr. Frederick Spicer, Sir R. Douglas Powell, Bart., K.C.V.O., replying, and the President proposed "The Health of the Honorary Secretary for the South" (Dr. T. Outterson Wood). Excellent music was given under the direction of Mr. Arthur E. Godfrey, and a most enjoyable and successful evening was spent.

THE LANCET.

LONDON: SATURDAY, JULY 6, 1901.

The Army Medical Service.

IN our issue of last week we observed in reference to the anticipated inquiry into the subject of the reorganisation of the Army Medical Service that the sooner this inquiry was undertaken the better for all concerned and that the promulgation of the names of those who were to constitute the committee was anxiously anticipated. By one of those coincidences which not uncommonly happen in the ordinary course of affairs the Secretary of State for War was at about the time that we went to press announcing from his place in Parliament the composition of the committee in question.

We can do little more now than give the impressions conveyed to our minds by a perusal of Mr. BRODRICK'S statement and, pending further information, make such few comments as occur to us at the moment. Mr. BRODRICK said that he had received a number of suggestions and representations from various quarters and that a committee of experts had been appointed to consider a scheme which he (Mr. BRODRICK) had drawn up for the future organisation of the Army Medical Service. From this it would appear that it is not intended to frame any scheme upon the lines of the suggestions and recommendations of the committee after it has duly investigated and considered the subject, but that a scheme of proposals will be at once submitted for their consideration and report. It may be that this plan of procedure has been adopted on business principles and with the practical end in view of giving a definite aim to the committee's proceedings. We have no particular fault to find with Mr. BRODRICK'S deprecation of hurry in the performance of the task assigned to the committee; on the contrary, we quite agree with him that where the object is to put the Army Medical Service on a permanently good footing the more thoroughly and carefully the matter is considered the better.

The committee will consist of the following members:—Mr. HOWARD H. TOOTH, C.M.G., M.D. Cantab., F.R.C.P. Lond., St. Bartholomew's Hospital; Mr. GEORGE H. MAKINS, C.B., F.R.C.S. Eng., St. Thomas's Hospital; Mr. ALFRED D. FRIPP, C.B., F.R.C.S. Eng., Guy's Hospital; Sir F. TREVES, K.C.V.O., C.B., F.R.C.S. Eng., London Hospital; Mr. ALEXANDER OGSTON, M.D. Aberd., Scotland; Lieutenant-Colonel A. H. KEOGH, R.A.M.C., C.B., M.D. R.U.I., Ireland; Mr. E. C. PERRY, M.D. Cantab., F.R.C.P. Lond., Senate of London University; Surgeon-General W. R. HOOPER, I.M.S., C.S.I., President of the Medical Board, India Office; and two officers who will be named by the Commander-in-Chief to represent the Army. The secretary will be Major H. E. R. JAMES, R.A.M.C., F.R.C.S. Eng. Mr. BRODRICK in announcing the names of the members of the committee added that he proposed to take the chair himself. If this is to be regarded as an indication of the importance which the Government attach to the inquiry and, as we hope and believe, as an earnest of the desire on Mr. BRODRICK'S part to carry out the inquiry to a successful conclusion, the medical service and the profession generally are to be congratulated. We have no desire to approach or to deal with the matter in any spirit of fault-finding or carping criticism, but we feel bound to remark that the constitution of the committee is unsatisfactory in one very important respect. The name of an army medical officer of high administrative rank and experience, with a knowledge of military organisation and the requirements of field medical service, is conspicuous by its absence. We think that this omission is much to be regretted and that it should be remedied. It is accentuated rather than otherwise by the fact that two purely military officers, it is presumed, and not military medical officers, are to be named by the Commander-in-Chief to represent the army on the committee. We sincerely trust that the committee will be empowered to call any witnesses whom they may desire to examine.

There can be no doubt that the names of the civil medical members of the committee are those of men of high scientific attainments and standing in their profession who are well acquainted with the requirements of the medical and surgical sides of civil hospital work. We may assume that the great and pressing object which the Government has in view at the present time is to ascertain what inducements are needed to make the army an attractive career to medical men and to supply the ranks of a medical service which is fast emptying itself with a class of men of a high average standard of medical qualifications together with a good sprinkling of men possessing the best professional attainments. The names of the members of the profession in civil life appointed to serve on the committee are a sufficient guarantee that the requisite information on these points will be forthcoming.

Dr. Metchnikoff on the Flora of the Human Body.

WE are now paying the penalty for the advantages which our ancestors enjoyed in the possession of long intestines inhabited by a rich microbic flora. This, stated briefly, was the text of Dr. ÉLIE METCHNIKOFF'S Wilde Lecture which was delivered before the Manchester Literary and Philosophical Society and which has recently been published in its memoirs and proceedings. It is the more interesting that doubts should now be thrown on the utility of the bacterial flora of the present human intestine, because it is only recently that other workers in the same field of science have adduced fragments of evidence which suggest that in many unsuspected instances these humble organisms fulfil a distinctly useful rôle in this and other departments of the animal economy. For instance, our long-cherished belief that the bacterial flora of the buccal cavity is only operative for harm receives a rude shock in the recent pronouncement that the presence of micro-organisms is essential to evoke in the salivary secretions that ptyalising function which heretofore they were supposed to possess in their own right. Isolated instances of this kind—and there are many of them—do not in any way militate against the lecturer's fundamental contention that, as far as man is concerned, in his present stage of evolution, not only are the bacterial inhabitants of the intestine a

distinct disadvantage to him, but, further, that the large intestine itself, the cæcum, and the vermiform appendix are morphological anachronisms, and directly responsible for certain pathological consequences which curtail life and may compass its end.

During the earlier and simpler stages of our ancestral history the possession of a voluminous intestine was no doubt necessitated by the nature of the food and was the expression of a responsive adaptation to the requirements of the environment. For the same reason saprophytic parasites were welcomed in the organism for the disintegration of cellulose. The advance of civilisation and the evolution of intellect and brain have entirely altered the conditions. For instance, the culinary art and the principles of modern gastronomics have modified the use of teeth for the attrition of food, and, further, the stomach and large portions of the intestine can be removed by the surgeon without apparent detriment to the physiological processes of digestion and absorption. Taking these facts into consideration, perhaps Dr. METCHNIKOFF is justified in hazarding the suggestion that the large intestine, the cæcum, and the appendix are in process of slow involution. Although, unfortunately, we possess no morphological evidence in proof of this contention, there is no reason to suppose that the developmental behaviour of these structures should disobey the fundamental biological law that functionless organs tend to disappear. Comparative pathology teaches us that organs in process of involution are specially vulnerable to disease and readily become the seat of parasitic invasion, and it is suggestive, to say the least, that cancer of the rectum and appendicitis are to all appearances greatly on the increase. The slow operation of natural causes to bring about the atrophy of useless organs in civilised man can hardly be accelerated by surgical interference or medical skill. The removal of the prepuce among Semitic people for hundreds of generations has not by one millimetre shortened the length of this apparently useless appendage. Nay, rather by interfering with the operation of natural selection and the elimination of those in whom the prepuce has tended to assume proportions actually dangerous to health, the practice of circumcision must have operated in the reverse direction.

Dr. METCHNIKOFF is of the opinion that medicine will ultimately cope more successfully with noxious microbes and their effects, and that the progress of surgery will enable us to remove by operation parts or organs propitious to the growth of a microbic flora. The consummation of this desirable end will be of the greatest advantage to the individual, but for the reasons previously stated it will tend to perpetuate in the race undesirable characteristics and functionless organs. The incubation of micro-organisms within the large intestine inevitably leads to the absorption into the system of considerable quantities of toxic substances, fatty acids, aromatic bodies, and other products of putrefaction. These, according to Dr. METCHNIKOFF, are the exciting causes, direct and indirect, of fibrosis, the so-called functional neuroses, and early decay. The toxic character of the urine in such cases is due to the elimination by the kidneys of the noxious bodies generated in other areas of the body, such as the bowel and skin; but the pathological consequences of parasitic invasion are not confined to the absorption of poisons, for it occasionally happens that the micro-organisms actually make their way into the living tissues and disintegrate the still vital material of which they are composed. As the tissues become gradually devitalised by the toxic action of absorbed poison the task of the bacterial flora becomes progressively easier—indeed, as HUEPPE has strenuously contended, this gradual training of purely saprophytic function may be a stage in the evolution of advanced parasitism. It is impossible to read the Wilde Lecture for 1901 without being struck by many of the suggestive theories which Dr. METCHNIKOFF put before his audience at Manchester, but we take it that the time is not yet ripe for the acceptance by the majority of medical men of many of his advanced biological tenets.

An Examination of the Abbé Diffraction Theory of the Microscope.

A VERY interesting paper on the above subject was read by Mr. J. W. GORDON at a meeting of the Royal Microscopical Society on June 19th. The Abbé theory has been so widely accepted and the experimental inquiries which have been made to test it have been in such complete harmony with it that most microscopists have thought that its truth scarcely admits of a doubt. But the accepted theories of to-day become the fallacies of to-morrow as knowledge accumulates and fresh light is thrown upon a subject. Mr. GORDON showed in his paper, not only that there are many facts which are inconsistent with the Abbé theory, but that the main facts which were supposed to demonstrate the theory may be explained in an entirely different manner. The Abbé theory, briefly stated, is that there is a wide difference between macroscopic and microscopic vision. In vision with the naked eye or with a lens free from spherical or chromatic aberration we obtain geometrically correct pictures produced in accordance with the laws of refraction. These dioptric images truly represent the appearance which the objects themselves would present were they enlarged to the same scale and viewed under similar illumination. We are therefore justified in drawing the same conclusions with regard to the structure of the objects which they picture as we should draw from the direct vision of actual objects having the same dimensions. This is not the case in the microscopic vision of minute objects and ABBÉ assumed that the images of minute objects are not delineated microscopically by means of the ordinary laws of refraction; they are not dioptrical results, but depend entirely on the laws of diffraction. HELMHOLTZ and ABBÉ concluded that no amount of magnifying power can separate dioptrically two lines, markings, or apertures of any kind, not more than $\frac{1}{72000}$th of an inch apart. ABBÉ assumed that the visual separation of more closely approximated lines or other markings is entirely the result of diffraction, the objective receiving and transmitting not only the ordinary dioptric rays but the inflected rays the course of which has been altered on their way through the object by some peculiarity in the disposition of its particles. These rays when acted upon by the objective produce diffraction spectra. If the markings are so closely approximated as to produce a wide dispersion of the interference spectra only a

part of them may fall within the range of the objective and the re-combination of these may produce a diffraction image differing more or less completely from the real structure. Mr. GORDON first dealt with the theory on theoretical grounds and summarised his results as follows: "The calculation upon which the theory rests is itself based upon two fundamental errors—one as to the position of the real diffraction images in the principal focal plane of the microscope, the other as to the phase relation between the direct and the diffracted rays. The theory itself, when extended to determine the number of bright lines seen in the real image of a diffraction grating, their position in the picture, and their individual appearance, breaks down entirely and yields only conclusions which are wholly at variance with the facts."

He next dealt with the phenomena which most writers have regarded as sufficient proof of the accuracy of ABBÉ'S conclusions. For the purpose of demonstrating the Abbé theory a grating ruled alternately with long and short lines is employed, the lines being traced with a diamond point on a film of silver of extreme tenuity deposited on a thin glass cover. It is easy to demonstrate that these lines form diffraction spectra, but the experiments of ABBÉ are employed to show the change which may take place in the appearance of an object by shutting off a certain number of the diffraction spectra. This is accomplished by using diaphragms with one or more slits placed immediately behind the objective, so that certain diffraction spectra are allowed to pass and others are excluded. Mr. GORDON contended that the pattern of the image formed in the microscope of the diffraction plate does not in any way depend upon the particular diffraction spectra which contribute rays to its formation and that the features of this image are affected by diffraction arising in the diaphragms themselves. In support of this view he showed that the Abbé phenomena may be exhibited by objects which are incapable of producing any diffraction spectra at all. For this purpose a self-luminous object was employed. This was obtained with a ruled glass plate with a number of lines traced at a distance of $\frac{1}{100}$th of an inch apart in a film of soot. The lines had the same proportional diameter, one to seven, relatively to their dark interspaces that the lines of the coarser ruling in the Abbé diffraction plate have to their intervening spaces. This glass plate is arranged at a suitable distance behind the substage condenser and its image is focussed upon the stage of the microscope side by side with the ruling on the Abbé diffraction plate. By a little management the aerial image of the carbon film may be made to assume the exact dimensions of the Abbé ruling, so that there are two objects in the field visibly alike but differing in the important particular that the one can and the other cannot be made to yield diffraction spectra. Mr. GORDON showed that all the various experiments which can be made with the Abbé film can be repeated with the two objects simultaneously and that in all cases it will be found that there is no difference between the behaviour of the one and that of the other. When the one is blurred the other is blurred; when the ruling appears doubled in the one it appears doubled in the other; when it appears trebled in the one it appears trebled in the other. Whatever results the diffraction plate can be made to yield this ghostly grating with no diffracted rays to be manipulated contrives to yield also. There were very many theoretical considerations which Mr. GORDON has not confirmed by experiment, but it is evident that the subject is one on which a great deal of useful work may be done, especially with the view of improving the resolving power of objectives.

"By Accident."

THE interpretation of the Workmen's Compensation Acts concerns His Majesty's judges rather than ourselves, but medical practitioners have already obviously so much responsibility imposed upon them in connexion with these Acts that we watch jealously any decisions likely to increase that responsibility. The case of PERRY *v.* BAKER, heard before His Honour Judge STONOR recently, illustrated the effect of sundry decisions of the Court of Appeal to which we need not refer in detail. The man PERRY injured himself in lifting a heavy oak seat that he was making for his employers in order to examine it underneath. The medical evidence for the applicant on this point was, according to the judge's note, that the exertion of lifting the bench strained or otherwise injured the applicant in the muscles of the back and probably otherwise, that he had also received considerable shock, and that his recovery was extremely doubtful. A question was raised as to the state of his health which does not seem to have affected the result. Judge STONOR intimated that to his unaided intelligence, which by the way is that of a judge of over 35 years' standing, this would have seemed an accident which would entitle the applicant to recover compensation. According, however, to decided cases there must be the presence of a fortuitous element to turn a normal condition of affairs into a catastrophe and to cause the injury to constitute an accident, and by the light of the same cases the injury which the man PERRY did to himself was not the result of anything fortuitous or unexpected. In illustration of this we may mention that a man, who had strained himself by over-exertion much as PERRY did, was once held entitled to recover because the planks which he was lifting were frozen together, so that the exertion required was greater than it would otherwise have been, and this, it was thought, imported an unexpected and fortuitous element into his case. We have not space to follow the Lords Justices in the splitting of hairs necessary for the interpretation of one of the worst drafted Acts of Parliament on the statute-book or to criticise the learned county-court judge whom we assume to have decided correctly according to precedent. It seems to us, however, that when the employer was made liable for "injury by accident arising out of, and in the course of, the workman's employment," an apparent limitation was introduced which would have been absent had the words "by accident" been omitted, and to which the interpretations referred to have given an effect that was perhaps not originally intended. The words, for example, may have been merely intended to exclude such "injury" as lead poisoning or illness contracted owing to insanitary conditions. As matters now stand, however, they eliminate injury in the ordinary sense of the term if it occurs in certain ways, and

the precise way in which the injury has been received thus becomes frequently the point upon which the case of each party hinges, while the medical witness, who has quite enough responsibility already in forming and enunciating his opinion as to the extent and the probable duration of the injury, is at once liable to be drawn into opinions and discussions as to whether there was an "accident" and how the "accident" took place—a matter on which he can only speculate, though perhaps from a slightly better point of view than other witnesses. He speculates, moreover, knowing that on his opinion may depend the livelihood of a poor man who in any case will be a cripple for life. Can it be wondered at that in such instances "expert evidence" becomes more uncertain and contradictory than it should be, and that it also often becomes the subject of unfavourable remark and undeserved generalities? We have not commented on the case before us from the point of view of justice or common sense. Had we done so we should have pointed out that the Act and decisions taken together seem to put a premium on negligence and to leave zeal and hard work at a discount. The workman who is injured through his own carelessness not amounting to serious and wilful misconduct, or through the carelessness of some fellow-workman whose conduct he regards with natural indifference, is to be compensated. The man who works too hard may injure himself without chance of compensation. At present the best advice that can be given to the working man is that he should not attempt too much, especially in the way of weight-lifting and other violent exertion. It is quite easy for a man to injure himself by doing that which he has already done frequently with apparent impunity, but such injury is not caused by an accident within the meaning of the Act.

Annotations.

"Ne quid nimis."

THE LONDON SCHOOL BOARD AND MEDICAL CERTIFICATES.

THAT remarkable body, the London School Board, has again been showing its want of common sense. Some little time ago a summons was taken out at the South-Western Police-court against William Stannet by one of its officials for neglecting to send his child to school. The mother of the child produced a certificate from Dr. J. Myles stating that the child was unable to attend school on account of her suffering from valvular disease of the heart. The complainant, in the usual manner of school board officials, objected to this certificate and the magistrate granted an adjournment to allow of the child being examined by Mr. F. C. Kempster on behalf of the board. The certificate given by Mr. Kempster practically agreed with that of Dr. Myles, but also it is reported as having contained the assertion that "the child would be just as well in school as nursing a baby at home." On June 29th Mr. Garrett adjudicated on the case, and the official suggested that the child should be made to attend school under a magistrate's order. Dr. Myles said that he had known the child for 12 months; she had been very seriously ill but was now better. If the mother took his advice she would refuse to send the child to school until after the summer holidays. Mr. Garrett thereupon refused to make an order and administered a rebuke to one of the school board visitors for making an observation about the medical man who had given evidence. The London School Board never seems to learn wisdom. Why could it not be satisfied with Dr. Myles's certificate? This was not a case in which the child was simply stated on medical authority to be unfit to attend school. An explicit diagnosis was given, a diagnosis of one of the most serious diseases to which humanity is liable. Mr. Kempster's diagnosis coincided, and with all due deference to him we take leave to doubt that nursing a baby is as deleterious in a case of heart disease as going to school, unless, indeed, the child walked about the room carrying the baby. But the case is very characteristic of the policy of the School Board as regards medical men. If a medical man is on the side of the board he is worthy of every credit; if not he is never believed. The board had best stick to its last fad of teaching children the violin, which, if extravagant, is not likely to result in death.

A FINE PERFORMANCE.

THE endurance and self-sacrifice of medical officers and of stretcher-bearers in South Africa have been the object of much well-deserved praise, and naturally the opportunity for the display of such qualities in the same way does not frequently arise in ordinary civil life. When such an opportunity does arise, however, it is a fine thing that the call should be willingly and promptly answered. Such was conspicuously the case on a recent occasion in Gloucestershire which is narrated to the *Standard* by a correspondent who adds that "we hear of so many brave acts during war that it is well to see that brave and kind ones occur also in peace." All praise is due to the members of the Sharpness ambulance corps, who at a moment's notice went some miles to the help of a man whom a medical practitioner had pronounced to be in need of surgical aid not practicable where he was. They bore the patient, a heavy man, a mile to a steam tug, took him 16 miles on a canal, and then bore him one and a half miles to his destination—a nursing home. They then had an 18-mile journey which landed them home at 3 A.M., and they refused any remuneration for their time and trouble. Such exertions would be admirable even if made in the course of duty, but when the only duty responded to is the general one lying on all men to succour the sick, voluntary efforts of this degree are worthy of the sincerest admiration.

THE HOUSING OF THE POOR AT BATH.

THE medical officer of health of the Bath Urban Sanitary Authority has just issued a report on the housing of the working classes in that district. Dr. W. H. Symons therein points out the fallacy of judging overcrowding by general statistics. Thus, the density of population for the 33 largest towns is equal to 33·8 persons per acre, while for the 67 other large towns, including Bath, the average in 1900 was 13·8 per acre. In London the density of population is 59 to the acre, but at Whitechapel it amounts to 208, while at Lewisham it is only 10 per acre. So also at Bath the census of 1901 gives the population as 14·8 per acre, but while it amounts to only 7·4 persons in the parish of Bathwick, it exceeds 77 persons per acre in the central parishes. The real point is to ascertain whether there is at least 300 cubic feet per person in bedrooms and 400 cubic feet in rooms where work is done during the day. Even this is a very low average and every effort should be made to raise it to 500 cubic feet per person. Dr. Symons very appropriately remarks that when the water-supply is accidentally polluted the results are soon apparent. The ratepayers and bread-winners are stricken down and steps are at once taken to stop the pollution. Then he adds: "The effects of polluted air—air contaminated with sewage or waste products from the lungs—are more insidious, less easily noticed

but not less fatal." Of those who die between the ages of 15 and 35 years probably more than half would have lived to be much older if they had been able to obtain a sufficient supply of fresh air. In this respect, however, the town of Bath should be exceptionally fortunate. Unlike the great industrial centres, social and economic causes have combined to relieve the pressure on space. Thus in 1851 there were 11,647 persons living in 1349 houses in the centre of the city. Now on precisely the same ground there are only 7577 persons living in 1342 houses. Practically the houses are the same, but their inhabitants have decreased in the proportion of 35 per cent. and there are only a few cases of overcrowding. For the remainder of the city, comprising 1935 houses, there has been a decrease in the last 50 years of 346 inhabitants, and taking the city as a whole the population has fallen from 4423 to 4077. On the other hand, the population of the suburban parishes, where there is plenty of room and not the same risk of overcrowding, has increased from 7557 to 20,074. In spite, however, of these most favourable circumstances, according to the Registrar-General's return for 1891 there were 4·11 per cent. of the population of Bath living in overcrowded tenements. It is true that the average of overcrowding for England in town and country was then set down at 11·23 per cent. One of the difficulties at Bath is that much of the lowest class property belongs to landlords who themselves are so very poor that they cannot afford to make the necessary repairs. Also there are certain districts subject to floods. Some improvements have been effected. Model dwellings have been constructed and these were described in our special report on the Sanitary Condition of Bath, which was published in THE LANCET of Oct. 14th, 1899, p. 1061. At the same time we there gave an account of some of the sanitary defects still subsisting. Since then a loan was approved by the Local Government Board (in December, 1899) for £10,500. With this money the level of some of the ground subject to floods has been raised and 16 model tenements have been built thereon. Another scheme by which 189 persons are affected has been sanctioned, but though some of the insanitary houses have been demolished no new structures have as yet been erected. The great difficulty in Bath, as elsewhere, is to re-house the class of tenants who overcrowd insanitary areas. At Bath there are several hundred families who cannot afford to pay more than 2*s.* 6*d.* a week rent, and therefore the model dwellings which are built in the place of the ancient rookeries attract a higher class of tenants. Thus the last census showed that there were at Bath 170 three-roomed tenements each containing six inhabitants; 70 tenements had each seven inhabitants; 53 had eight inhabitants; 23 had nine inhabitants; eight had 10 inhabitants; and two had 11 inhabitants. Then there were 3000 persons living as families of three or more persons in tenements of only one or two rooms. The Local Government Board will not sanction one-room tenements. Dr. Symons himself thinks that three rooms are the least that can be allowed for decent family life; yet it does not seem possible to provide three rooms for 2*s.* 6*d.* per week. Here there is evidently a deadlock and the report before us does not suggest a solution.

A NEW "SPORT."

WE know not how the term "sport" as distinguished from cruelty is to be defined unless it is by reference to that sense of common justice which demands a fair chance for the hunted animal and protects the inoffensive and defenceless. It is in accordance with this feeling that the bull-ring has died out with our ancestors. But the heads of Hydra are not soon disposed of. Petty forms of cruelty arise wherever there exists a morbid spirit of destructiveness unchecked by any love of nature or regard for the lower creation. According to a contemporary a club has been formed in the New Forest, and probably others elsewhere, for the purpose of squirrel-shooting. Everyone who delights in the beauty of woodland life and scenery must greatly regret the introduction of a so-called sport which is at once as cruel as it is useless and wanton. The comparative tameness of the squirrel renders it in many cases an easy prey. Its body is of little value to anyone. Its disappearance would remove one of the most beautiful attractions of rural nature. We join with our contemporary in expressing the strongest disapproval of these shooting clubs, and we would call upon local authorities throughout the country to prohibit their formation. If steps are not soon taken to enforce the various Acts available for the protection of wild life, and further to extend that protection, we shall find that many birds and beasts once common in this country will have to be catalogued as "rare" and some probably as "extinct."

AN EXTRAORDINARY CASE OF THE LOSS OF SENSE OF PERSONAL IDENTITY.

ON Wednesday, June 5th, a young lady who had suddenly lost her memory and sense of identity while cycling at Tunbridge Wells a few days before was discovered and restored to her parents at New Cross. Her mind was now a perfect blank and she did not recollect anything, not even her name. In a paper read before the Section of Nervous and Mental Diseases on June 6th, at the annual meeting of the American Medical Association, Dr. Edward E. Mayer of Pittsburg reports the following case illustrative of a similar disorder of mind. A young man born in Pennsylvania in 1860 was riding in a railway train in 1884 when it was wrecked. He felt himself hurled through the air and then lost consciousness and remembered nothing. On regaining consciousness it turned out that he had lost all recollection or knowledge of anything that occurred for a period of five years before the accident, and no one could be found who was able to give any information about him. Twelve years ago, in 1889, he first arrived at Pittsburg and met his present wife, and two years later married her. He was never able to give her any information regarding his previous life, although he had not forgotten his name. In 1892, shortly before the birth of his eldest child, he wandered away one Sunday afternoon and did not return until Monday evening and could not then give any account of his absence. As he was a total abstainer this conduct was regarded as peculiar. About a year later, in 1893, he disappeared for several days, and during his absence he sent a postal card to his wife, telling her that the memory of his mother had suddenly returned to him and that he had gone to pay her a visit. He returned home a day or two later. The man's occupation before he met with the railway accident was that of a carpenter, but after his marriage he was employed at different times as a farmer, sawyer, and painter. About this time he complained of symptoms which led his medical adviser to suspect abscess of the liver. One day in February, 1901, while suffering intensely from abdominal pain, he fell down on the floor and lay unconscious for several hours. When he regained consciousness the memory of the last 17 years of his life (1884–1901) was apparently entirely obliterated. The only consciousness preserved was that of his life previously to the railway accident. He insisted that he was 24 years old (whereas he was 41) and that he had neither wife nor children. The surroundings among which he had lived for the past 12 years were apparently strange to him, and it required much persuasion to induce him to believe the story of the true state of affairs. The symptoms of hepatic abscess now also disappeared. He tried to resume his long-forgotten work as a carpenter, but his hand had lost its cunning and he was obliged to begin as an

apprentice. On March 8th last he disappeared for 12 hours and upon his return home he stated that he had walked about 30 miles in the country—his condition presumably being one of sub-conscious automatism, probably of epileptic origin. The following day he went out to buy some groceries but did not return home and no word or trace of him had been received since by his wife. This case, apart from its psychological interest, has many features of resemblance to a case of epilepsy recorded in these columns[1] and possesses considerable medico-legal importance in regard to the responsibility for deeds committed during the condition of mental automatism peculiar to such cases.

TEA INTOXICATION WITH SPINAL SYMPTOMS.

A PAPER dealing with an obscure and little known group of spinal symptoms arising from the abuse of tea was read by Dr. Alfred Gordon at the June meeting of the Philadelphia Neurological Society. He presented a patient, a woman, aged 31 years, who seven years previously had had an operation performed for some condition of the uterus. Since then she had contracted the habit of drinking tea to excess, sometimes 15 cups a day. Three months previously her present illness began with symptoms of fatigue and unsteadiness in walking. The knee-jerks were increased, sensation was altered, and hyperæsthesia was present in the lower extremities. The pupils were unequal and there was nystagmus. Romberg's symptom was present. Recently she had suffered from "spells of unconsciousness" lasting for a few moments. There was a feeling of weariness in the legs and the clinical picture was that of hysteria and of lateral sclerosis. Cases of this kind, says Dr. Gordon, are rare, and the possibility of contamination of the tea with lead in minute quantities should be borne in mind. In the discussion following the above communication Dr. D. J. McCarthy said that he had seen a case where the patient was accustomed to take as much as 10 cups of tea a day. In that case the symptoms pointed to sclerosis of the spinal cord.

AN ANTI-VACCINATION BILL.

WE observe among the private members' Bills that are before the House of Commons one which purports to amend the Vaccination Acts and which exemplifies the tendency of the would-be legislator to follow up any newly made alteration in the law with a proposal that seeks to "go one better," and that in doing so would threaten serious mischief if the introduction of a Bill by a private member were to imply in any considerable number of cases the production of a new Act of Parliament. As illustrations of our meaning we might cite an attempt of the present year to limit the working day of the miner to eight hours from bank to bank—that is, to reckon his time in the mine on his way to his work as well as his time actually working—and other Bills which have sought to forbid the employer, already made responsible for injuries done to a workman by the negligence of his fellows, from setting up in answer to an action for compensation contributory negligence, or wilful misconduct on the part of the injured workman or "any other defence" (*sic*) to an action for compensation. The Bill to which we now call attention follows up the clause in the recent Vaccination Act which brought into being the conscientious objector by seeking to enact that "no parent or person having the custody of a child shall be compelled or ordered to vaccinate such child by any justice, court, or other, having authority hitherto, to so compel or order." The particular portion of the operative section which we have quoted seems a little obscure in its drafting, but its intention is tolerably clear and its defects may be in part due to the excitement of the reformer when confronted with compulsory vaccination. It is a matter of regret to many that want of time or the facilities afforded by the rules and customs of the House of Commons frequently hinder or arrest useful legislation introduced by private members. On other occasions no one can deny that such rules and customs are capable of use as well as of abuse and that the suppression and silent obliteration of Bills may be quite as beneficial as the discussion of them.

[1] THE LANCET, July 28th, 1899, p. 280, A Case of Pure Psychical Epilepsy.

BACTERIOLOGY AND THE FOOD AND DRUGS ACT.

THERE can be little doubt that those who were responsible for the framing of the Food and Drugs Act never intended or even foresaw that its clauses could apply to bacterial contamination and such contamination, be it remarked, is for a bacteriologist rather than a chemist or analyst to discover. The question opens a very wide field of inquiry and action, but already, as we pointed out in a leading article last week, it has been held that milk contaminated with pathogenic bacteria is prejudicial to the purchaser within the meaning of the Food and Drugs Act. We wonder how many public analysts are qualified to detect pathogenic bacteria in milk or other articles of consumption. We imagine but very few, and therefore this ruling sooner or later is bound to have a disturbing influence on the machinery of the Act. We note that the Institute of Chemistry has already established an examination in biological chemistry with special reference to the chemistry and bacteriology of foods, water, sewage, and effluents, and the practical applications of biological chemistry to industries. Our own view is that the public analyst can hardly be expected to undertake the very intricate work of bacteriological investigation, and such, in our opinion, should be referred at his instance to a bacteriologist. But we recognise the desirability of public analysts being made familiar with this work and its details. In the same way it is important, we think, that the public analyst should have a more intimate knowledge of drugs and therapeutics than he has hitherto been shown to possess, and here again the Institute of Chemistry has designed an examination with the view of certifying that he possesses such a knowledge; of course on no grounds should the possession of such a certificate be regarded as in the smallest sense a medical qualification.

THE ASSOCIATION OF PUBLIC VACCINATORS.

THE second annual dinner of the Association of Public Vaccinators was held on June 28th, at the Hotel Great Central, Marylebone-road, N.W., at the close of the annual general meeting. A large number of members, including representatives from Lancashire, Gloucestershire, and the eastern counties, assembled under the presidency of Mr. E. Climson Greenwood, president of the association. After dinner some capital musical entertainment was provided in addition to that which arose from the various speeches. Most of the speakers alluded in glowing terms to the excellence of the glycerinated calf-lymph now supplied by the Government, and Dr. S. Monckton Copeman, responding for the Local Government Board, explained that the dissatisfaction which was caused at first was due to the large initial demand, a demand far larger than had been anticipated, as a result of the new Vaccination Act. Mr. R. Macartney utilised the duty which had been entrusted to him of proposing the toast of "The Association of Public Vaccinators" to state very clearly the defects in the status of public vaccinators under the present Act. Dr. A. E. Cope in responding to this toast was able to give a very satisfactory account of the condition and prospects of the association. The "conscientious objector" was naturally the object of many

remarks, and some quaint anecdotes were forthcoming which tended to show that it was quite possible to be an objector without being conscientious. Inefficient vaccination and the "one-mark man" also figured prominently in the speeches of members of the association. There can be no doubt of the value of such an association as that of the public vaccinators, and we were surprised to find how small a percentage of public vaccinators have as yet availed themselves of the privilege, open to them all, of becoming members of the association. To have such an organisation through which to exchange views and to discuss new points arising in connexion with work common to all its members must be of great service, and moreover the position of the public vaccinator is not yet so well defined or so suitably arranged that any means may be neglected by which to ensure his obtaining the consideration and facilities that his merits as well as the public welfare most decidedly demand. The secretaries of the association are Mr. V. A. Jaynes and Dr. A. E. Cope, and we strongly recommend public vaccinators who have not yet joined to become members of the association.

PICTURES IN BACTERIA COLOURS.

WHEN Mr. Opie was asked what he mixed his colours with, he replied, perhaps not very courteously, "With brains, Sir." His meaning was, of course, perfectly clear. Brains, indeed, do elaborate colours, but Mr. Opie could hardly have foreseen that the human brain would have worked out a method depending upon the production of colour by micro-organisms. For the most part the permanent pigments of the artist have a mineral composition, although, of course, the study of organic chemistry has made available thousands of pigments derived from coal-tar. Organic colourings also—and very beautiful colourings they are—may be the product of certain species of bacteria. Hence they are called chromogenic bacteria. Bacteria are known which when placed in a suitable environment will produce almost all shades of colour. In other words, they evolve products which absorb part of the components of white light and return the residual component or components which may be a tint having more or less the purity of a primary colour of the spectrum. Thus by cultivating various chromogenic organisms each on its proper patch on the canvas a picture with all the colouring that the colourman's art can produce may be obtained. Sunset effects might in this way be produced by the micrococcus prodigiosus grown, say, on a background of boiled potatoes. This organism produces bright red spots and was doubtless responsible for the death by violence of many a victim who in bygone days was charged with having brought about the blood-red spots that were occasionally found developed on various articles of food. The same organism doubtless led to the occasionally reported miracle of "the bleeding Host." Again, doubtless excellent seascapes could be produced by the selection of organisms producing yellow and blue colours respectively, a blend of colour suitable perhaps also for a moonlight scene, and the purple-producing bacteria might be enlisted for the presentation of dawn. A field of corn might possibly be faithfully coloured by growing the micrococcus aurantiacus on a suitable medium, or for the same purpose the sarcinæ might be used which produce rich yellow colours, although no sarcinæ producing blue, violet, or green colouring matters are as yet known. A great variety of tints may be noted in certain cheeses and under certain circumstances, in the Stilton cheese in particular, the tints of pink, red, brown, and green being respectively evolved. It is well known that the intense blue of natural indigo is a product of the active life of bacteria. In the province of Bengal alone the value of the output of indigo per annum is, or was, something like two millions of pounds sterling, and it is astonishing to think that such a wealth of produce is gained by the labours of a microscopic organism now recognised as a distinct species and known as the bacillus indigogenus. There is no telling what marvellous results the study of chromogenic organisms may lead to, and it is not impossible that a picture will some day be produced in which the colours portrayed on the canvas will be the products of bacteria provided with a suitable pabulum.

THE GOVERNMENT AND THE WATER-SUPPLY OF LONDON.

MR. LONG, the President of the Local Government Board, was present on Wednesday night at a complimentary dinner given to Mr. H. S. Samuel, M.P., by his constituents in the east of London, and he took occasion to make a most important pronouncement upon the London water question. Mr. Long definitely pledged the Government to introduce next session a Bill dealing with the matter, and expressed confidence that the measure for which his department would be responsible would solve this difficult problem in an equitable and final manner. We sincerely trust that Mr. Long is not over-sanguine, for complete success will be difficult to obtain, and failure will have far-reaching consequences. It is well known that the present Government does not favour the pretensions of the London County Council to be constituted the sole authority over the water-supply of London, and Mr. Long, while complimenting the great municipal body upon its energy, definitely foreshadowed the fact that the Government scheme would give the London County Council no predominant position. Something of the nature of the measure which the Government will place before the country may be gathered from Mr. Long's adjuration to the metropolis, the suburban fringe, and the immediate vicinity affected to consider the advisability of a give-and-take attitude. He asks the residential neighbourhoods which loosely girdle London, though in many cases outside the geographical limits of the County of London, not to be too insistent upon what they conceive to be their uttermost rights in the matter of their water. He would have them remember that proximity to the metropolis brings them incalculable advantages, and he begs them to consider these in the nature of a *quid pro quo*. His speech as far as it went indicates the intention of the Government to approach this difficult matter in a statesmanlike manner. More than this we cannot now say.

THE SPEED AND CONTROL OF MOTOR-CARS.

THE series of accidents which have occurred in this country and in other countries during the past week is calculated to bring the motor-car into disrepute and we counsel all interested in any way in motor-cars to do their utmost to suppress furious driving. All motor-car drivers should remember that motor-cars cannot be let loose upon the streets like so many railway trains. Present arrangements will not admit of it. Until motor-cars have a track of their own they must be placed under the strictest possible control in regard to speed and the rule of the road. With motor-cars coming round sharp corners at high speed pedestrians need almost a new sense. The "pip, pip" is, as a rule, under these circumstances not a timely warning and people are likely to be run over before even they can realise that a motor-car is turning the corner. It would be well enough if it were possible that certain tracks in our busy thoroughfares could be allotted to the motor-car, but that is not possible and therefore in the interests of the safety of the public this method of travelling must be kept within bounds. The temptation to attain a high speed is, we fear, very strong when a driver knows that he is in possession of potentialities which neither overstrain nor

exhaust his "petrol steed." It is difficult to enforce one set of rules for the country road and another set for the high streets of the towns, but, as we have said, such rules are necessary in order to protect the public. It cannot be gainsaid that the motor-car is by many people viewed with terror and alarm inspired through the fault of motor-car drivers themselves. The latter forget that a series of hundreds of explosions in order to gain motion is a new feature on the road as is the speed at which the motor-car is able to travel. We do not doubt that in due time the noise will be got rid of, but that achievement may likely enough prove a new danger. The temptation to increase speed will be more than ever. We could wish for some invention by means of which the speed of a motor-car could be automatically kept within legal bounds. Surely in these days of extraordinary engineering skill it would be possible to devise an arrangement attached to the axle of the motor-car which would check the speed of the car as soon as it rose to a certain and a dangerous point. The attachment of such an arrangement to a motor-car could be made compulsory and anyone found without such a method of control on his car could be fined. We have no wish to interfere with any advance in means of locomotion, but this advance must not be made at the expense of the public safety.

THE EFFECTS OF BURIAL AFTER AN EXPLOSION.

IN the *Deutsche Militärärztliche Zeitschrift* for May, p. 225, Dr. Herhold relates the cases of five men who were engulfed in the ruins of a powder magazine which exploded at Paoting-fou on Nov. 30th, 1900. Four out of the five victims were more or less completely buried in the débris, while the fifth was thrown violently to the ground, losing consciousness for a few minutes and subsequently exhibiting delirious symptoms during several days, with total amnesia regarding the events which immediately preceded the explosion. The body of one of the buried men was not recovered for between 50 and 60 minutes. The man had then been dead for some time, but one of his companions in misfortune declared that he felt him stirring beneath him for 10 or 15 minutes after they were engulfed. At the necropsy the lungs were found to be intensely congested with sanguineous effusion into the pleural cavities, and there were also blood-clots in the right side of the heart. The rescue party succeeded in freeing the head of another of the victims after about 25 minutes, but 15 minutes more elapsed before the whole of his body was brought to the surface. He was a man of very great chest capacity, and said that he had been able to breathe quite freely until his comrades by their trampling overhead occluded the air crevices. When exposed his skin was deeply cyanosed and for some little time he remained semi-delirious. Another of the men was rescued after he had been completely buried during at least 20 minutes. At first he, too, was able to draw his breath with comparative freedom, but gradually the supply of air seemed to be shut off, until finally the act of respiration amounted to the most intense agony. In conclusion, Dr. Herhold lays stress upon the great importance in similar cases of preserving the patency of all channels through which the air can possibly reach the buried persons. The utmost promptitude in attempting to rescue them is, of course, essential, but misdirected efforts are worse than useless. Whenever practicable it would be well to commence proceedings by an excavation at the side of the spot where the victims are believed to be lying. A short horizontal tunnel can then be driven with a minimum risk of interfering with the air-supply. Should the exact position of the buried individuals be known it ought to be possible to insert ventilating tubes for their relief, but all indiscriminate explorations of this nature are fraught with danger. In cases where access in the desired direction is only attainable from above it may often be possible to avoid trampling on loose detritus by utilising planks or beams resting on trestles, blocks of wood, large stones, or any other supports that may be available.

MENTAL DISORDERS FOLLOWING INFLUENZA.

IT is now a well-recognised fact that mental disorders are more frequent after influenza than after any of the other zymotic diseases. In the April number of the *Journal of Mental Science* Dr. George A. Rorie, medical superintendent of the Cumberland and Westmorland Asylum, gives an account of insanity following influenza, with statistics of 68 cases. An increase in the admissions of patients suffering from melancholia during or after epidemics of influenza has been reported from several of the asylums of this country—e.g., Hanwell, Birmingham, Nottingham, and Edinburgh. On examining the statistics of admissions into the Cumberland and Westmorland Asylum Dr. Rorie finds a similar increase in admissions of melancholic and suicidal patients during the general epidemics of influenza. "The increase in the admission of melancholic patients is specially marked in the years 1891, 1893, and 1896, while there is a marked increase in the admission of suicidal cases during the years 1890, 1893, and 1895." During the period from 1890 to 1900 68 cases of insanity, in which influenza was the chief predisposing or exciting cause, were admitted to the Cumberland and Westmorland Asylum. Besides these, says Dr. Rorie, there were other numerous cases, some of which were partly due to influenza, but these have not been included in the paper which takes account only of those wholly due to influenza. Of the 68 cases there were 34 males and 34 females. Taking the males it was found that the average age on admission was 43·8 years. Six were between the ages of 61 and 70 years, and 10 were between the ages of 21 and 30 years. Among the females the average age was 49·5 years, which is rather older than the males. The greatest number were between the ages of 41 and 50 years. The question as to the exact time of the appearance of mental symptoms after an attack of influenza was difficult to answer. In some cases it seemed to follow directly on the attack of influenza or at an interval of a few days, in other cases weeks or months seemed to have intervened. In many cases the patient's friends stated that the patient had never been the same mentally after an attack. These results concur with those published 10 years ago by Dr. Leledy in his work on "Influenza and Mental Disorder." Most commonly an interval of from one to three months would elapse between the attack of influenza and the commencement of melancholia, mania, or other form of mental disorder. A notable feature was the large proportion of suicidal cases in both mania and melancholia. Thus of a total of 34 male patients 17 were suicidal, 16 of these being cases of melancholia and one of mania. Of the 34 female patients there were 19 suicidal cases, of which 14 had melancholia and five mania. The type of melancholia varied a good deal: in some cases it was simple melancholia with listlessness and loss of appetite, in others there was a certain amount of mental confusion and impairment of memory, with a frequent tendency to stupor, especially in the female cases. In some cases the patients were resistive, had delusions of persecution or poisoning, and refused to take food. Hallucinations were noted in five females and three males; these were usually of hearing, but hallucinations of sight and feeling were also met with. The cases of acute mania among the men were all at a considerable period after the attack of influenza; among the females, on the other hand, two out of four cases of acute mania followed soon, if not directly, after the attack. One of the male patients, aged 42 years, rapidly developed symptoms of general paralysis after influenza and died seven months after

admission. Dr. Rorie concludes that mania is the least favourable form of insanity following influenza as regards prognosis. In patients already insane the effect of an attack of influenza led to little change in the majority of cases, but two cases of delusional insanity under Dr. Rorie's care became markedly worse, giving freer utterance to delusions of persecution, and one case of melancholia became distinctly more depressed.

MILK UNDER THE FOOD AND DRUGS ACT.

A MILK-SELLER was summoned recently before Mr. Marsham at the instance of the Holborn Borough Council for selling milk from which 8·6 per cent. of the fat had been abstracted, and she was ordered to pay a fine. Upon this a member of the firm from which the milk had been originally purchased asked that the second sample reserved might be sent to the Commissioners of Inland Revenue for analysis, and in this request the defendant joined. The milk, however, as might have been expected under the circumstances, had during the time that had elapsed since it left the cow undergone natural processes which rendered its analysis for the determination of the question before the court impossible to conduct satisfactorily. The precaution of adding a few drops of a preservative—of course, not in sufficient bulk to influence the analysis—had not been taken. Mr. Marsham accordingly said that he had no alternative but to dismiss the summons as the defendant had a right to have the milk analysed at the Government laboratory. This unsatisfactory termination of the case is due to the 21st Section of the Food and Drugs Act of 1899 which enacts that "the justices or court referred to in Section 22 of the Sale of Food and Drugs Act, 1875, shall, on the request of either party under that section, cause an article of food or drug to be sent to the Commissioners of Inland Revenue for analysis and may if they think fit do so without any such request." The section of the Act of 1875 referred to said, "The justices may in their discretion" cause any article of food or drug to be analysed by the Government analyst, a very different provision, and one which we should have thought adequately protected both parties without offering to the defendant in certain cases a simple method of escape, dependent only on the question of whether the article of food which he was selling was of a perishable nature or not. We are not aware of any tendency on the part of analysts acting for local authorities to make mistakes or unduly to emphasise the case against local defendants by making incorrect analyses, or of any magic attaching to analysis in a Government laboratory. Admittedly, differences of opinion may arise in obscure and difficult analyses, and a witness called by one side may draw inferences differing from those drawn by one called by the other side. On such an occasion a third opinion is obviously useful, whereas it is not wanted when a defendant has cast no doubt upon the evidence brought against him. But it seems to us that unless the precaution of adding a minute quantity of a preservative be taken most prosecutions connected with the sale of milk, and some with regard to other articles of diet, will, in hot weather, at all events, be futile. Possibly, however, the magistrate can be asked and will be willing in all cases to send the second sample to the Government analyst directly it is taken and before the case is heard.

OUR readers will regret to hear of the serious illness of Mr. Jordan Lloyd. On Tuesday evening, June 25th, Mr. Jordan Lloyd presented symptoms of acute appendicitis, and as they grew more severe an operation was decided upon on the following Thursday morning. The operation was performed by his colleague, Mr. Bennett May, when a perforated and gangrenous appendix was removed. We are glad to say that during the anxious week that has elapsed since the operation Mr. Jordan Lloyd's progress towards recovery has been steady.

DR. GLOVER informs us that it is his intention to offer himself for re-election as one of the Direct Representatives for England and Wales. It is understood that Mr. Victor Horsley will resign his seat and that he and Mr. G. Brown will also seek re-election. Mr. Horsley, at his original by-election, stated that he would resign at the same time as his colleagues' tenure of office terminated that the expense of two elections might be obviated.

THE quarterly meeting of the Society for the Study of Inebriety will be held at 11, Chandos-street, Cavendish-square, W., on Tuesday, July 9th, at 4 P.M., when a paper will be communicated by Dr. T. N. Kelynack and Mr. W. Kirkby, F.L.S., on Arsenical Poisoning from Beer Drinking in its Relation to the Study of Inebriety. The President, Dr. Wynn Westcott, will be in the chair. Visitors are cordially invited.

DR. J. LORRAIN SMITH has been appointed a member of the Commission to inquire into the present condition of the higher, general, and technical education available in Ireland outside Trinity College, Dublin, and to report as to what reforms, if any, are desirable in order to render that education adequate to the needs of the Irish people.

HIS MAJESTY THE KING has been graciously pleased to continue the privilege of the Royal Patronage to the National Sanatorium for Consumption and Diseases of the Chest at Bournemouth, of which charity her late Majesty Queen Victoria had been a patron since the year 1869.

WE understand that the Committee appointed by Mr. Brodrick to consider the War Office scheme for the reorganisation of the Army Medical Service will hold its first meeting to-day (Friday).

THE Madrid *Correspondencia* of June 26th states that 12 cases of plague and four deaths have occurred at Oporto.

ROYAL NAVAL HOSPITAL, HASLAR.

THE session of instruction at the Royal Naval Hospital, Haslar, terminated on June 26th, when the 14 surgeons under instruction who had obtained their commissions after the competitive examinations in London some months previously received appointments to His Majesty's ships on the determination of their seniority by the sum total of the marks obtained in London and at Haslar. The following prizes were awarded—viz., the gold medal to Surgeon A. J. Wernet, and the microscope and the silver medal and books to Surgeon E. Cox. The Director-General of the Medical Department of the Royal Navy, Sir Henry Norbury, K.C.B., in distributing the prizes complimented all the officers highly on the very favourable report which he had received from the inspector-general and the officers of the professorial staff as to the great interest which they had shown in the subjects which formed the course, as well as on the general zeal and ability that they had evinced during the time they had been under instruction.

Surgeons in Order of Seniority.

Name.	Marks.	Name.	Marks.
1. E. Cox	6629	8. T. F. O'Keeffe	4681
2. J. MacDonald	6168	9. E. F. Ellis	4472
3. A. La T. Darley	5656	10. D. V. Lowndes	4250
4. A. J. Wernet	5631	11. G. C. C. Ross	4245
5. C. E. C. Stanford	5003	12. P. F. Alderson	4052
6. A. R. Thomas	4955	13. H. C. Woodyatt	3855
7. W. E. Ruttledge	4526	14. J. Thornhill	3248

ARMY MEDICAL SCHOOL, NETLEY.

THE eighty-second session of the Army Medical School, Netley, was brought to a close on June 29th, when the prizes were distributed and an address was delivered by the Right Honourable the Earl of NORTHBROOK, G.C.S.I., in the presence of a distinguished company which included Surgeon-General A. F. Preston (acting Director-General, Army Medical Service), Surgeon-General R. Harvey, C.B., D.S.O. (Director-General, I.M.S.), Surgeon-General Sir Joseph Fayrer, Bart., K.C.S.I., Surgeon-General W. R. Hooper, C.S.I. (President of the Medical Board, India Office), Sir Alfred Lethbridge, K.C.S.I., Colonel H. Cayley, and the military staff of the Royal Victoria Hospital.

The proceedings were opened by Colonel K. MACLEOD, who read a satisfactory report on the work of the session of the school and announced the following awards: Herbert prize of £20, in memory of the late Right Honourable Sidney Herbert, awarded at the end of each course of instruction to the surgeon-on-probation who has evinced the highest proficiency in the special subjects taught in the school: G. E. Charles, I.M.S. Martin Memorial gold medal, to commemorate the late Sir Ranald Martin, C.B., given to the surgeon-on-probation who takes the highest place in military medicine: G. E. Charles, I.M.S. The Professor of Medicine called attention to the names of Surgeons-on-Probation A. G. McKendrick, N. E. H. Scott, and F. W. Sumner as having particularly distinguished themselves in military and tropical medicine. The Parkes Memorial bronze medal given to the surgeon-on-probation who takes the highest place in hygiene, part of a memorial to commemorate the great services of the late Professor E. A. Parkes, F.R.S.: G. E. Charles, I.M.S. Second prize in hygiene, a book presented by Mrs. de Chaumont in memory of her husband, the late Professor F. de Chaumont, F.R.S.: Surgeon-on-Probation W. C. Stevenson, R.A.M.C. The following surgeon-on-probation was mentioned as having particularly distinguished himself in military hygiene: O. St. J. Moses, I.M.S. The Montefiore prizes, founded by the late Mr. Nathaniel Montefiore — First prize, medal with cheque for £21: O. St. J. Moses, I.M.S.; second prize, a revolver: G. E. Charles, I.M.S. The Professor of Military Surgery named the following surgeons-on-probation as deserving of honourable mention for their knowledge of military surgery: J. W. Little, I.M.S., and J. O. Barnes, I.M.S. Prize in Pathology, books presented by Sir Joseph Fayrer, Bart., K.C.S.I.: F. W. Sumner, I.M.S.; while the names of the following officers were mentioned as worthy of special mention as pathologists: G. E. Charles, I.M.S., and W. D. Ritchie, I.M.S. Maclean prize, books presented in memory of Surgeon-General Maclean, C.B.: A. G. McKendrick, I.M.S., who obtained the highest marks in chemical and ward work. Colonel Macleod said that he had much pleasure in announcing that a new prize, consisting of a bronze medal and £5, had been established by Mrs. W. Marshall Webb in memory of her husband, the late Surgeon-Major-General William Marshall Webb. The subject of competition would be Hospital Administration, which was selected by the Senate, to whom the choice was entrusted by Mrs. Webb, as one of peculiar importance and of special fitness in view of the fact that the late Surgeon-Major-General Webb held the office of assistant professor of military medicine in the school. The prize would be open for competition next session. Colonel Macleod then invited Lord Northbrook to distribute the prizes.

Lord NORTHBROOK, on handing the prizes to the successful competitors, said a kindly word to each and then gave an address which lasted some 20 minutes. He commenced it by offering his congratulations to the prize-winners and said that in his own experience he had observed that many men who had distinguished themselves as prize-winners at the universities had gone on to most distinguished careers in after life, but while this was so many of those who had risen to high positions, especially in politics, had not been prize-winners and had only really commenced to educate themselves after their so-called college training was over. He hoped that the present success of the prize-winners at Netley was but an earnest of greater success in the future. Speaking specially of the Indian Medical Service, he reminded the young officers of the great field of work open to them, not only in their own profession but in that of political life in India and in other departments of the public service outside their own professional calling. He said that he would like to mention four names of men which occurred to him, all of whom had done excellent work for India. The first was that of the late Dr. Bellew, who did such excellent work as a frontier political officer when he went on the famous mission to Kandahar with Sir Harry Lumsden and who was selected by Lord Lytton as the man most fit for the post of chief political officer with the army of Kabul. Surgeon-General Bellew was a centre of influence all along the frontier and Lord Northbrook repeated the remark made long ago by a prominent Indian politician that "Dr. Bellew's moral force among the natives of the frontier was equal at times to the physical force of three battalions of infantry." The second name was that of Sir George Robertson who conducted the defence of Chitral and who was so well known for his work as a frontier political officer. He then referred to Colonel Cayley who after doing good work in India held a professorship in the Army Medical School and since his retirement had been through the African war as the head of the Scotch Red Cross Hospital. The fourth name was that of Lieutenant-Colonel E. Lawrie, I.M.S., of Hyderabad, who had distinguished himself in connexion with the Chloroform Commission. In speaking of the prizes gained in the school, Lord Northbrook said that the one named after Sidney Herbert, under whom he had served as Under-Secretary of State for War about the time when he had been removed to the House of Lords as Lord Herbert of Lea, commemorated a great Secretary of State, and one of the value of whose work he was personally well aware as the introducer of the improvements into the army after the Crimean war with the assistance of Miss Florence Nightingale. He quoted this lady's letter to Lord Salisbury urging the benefit of the expenditure of treasure in trying to prevent the waste of life from disease in campaigns by perfecting, as far as possible, the medical arrangements. Lord Northbrook said that he noticed that most of the prizes were in memory of distinguished professors of the school. There was, in his opinion, no better way of commemorating their work. He was especially glad to hear of the new prize which had been established by Mrs. Webb in memory of her husband, the late Surgeon-Major-General William Marshall Webb who had formerly been an assistant professor of medicine in the school. He was, he said, old enough to remember the Crimean war and the fault-finding which was general all over the country with the bad administration of the army. Such complaints, if true, had to be suffered for. At the time of the Crimean war they were true and they ended in the fall of the Ministry and in Lord Aberdeen being turned out of office. During the present war complaints had been made about the administration of the army in South Africa, complaints as to the transport and supplies, and specially as to the administration of the medical service. The latter had been inquired into and found creditable. At first all sorts of complaints were made, but now the public were satisfied and they ought to congratulate themselves on all that had been accomplished. A Royal Commission had inquired into the working of the Royal Army Medical Corps in South Africa and found that it had been satisfactory, though it had pointed out certain defects. Referring to the report of the Commission he quoted the concluding paragraph, which he specially drew attention to: "And all witnesses of experience in other wars are practically unanimous in the view that, taking it all in all, in no campaign have the sick and wounded been so well looked after as they have been in this," and he asked the pertinent question—To whom is the credit due? He said that the Secretaries of State as a rule were only a short time in office, and that unless they were exceptional men like Lord Cardwell, though they might do conscientious work they left no particular record of their day. The credit of the success was due to the patient attenders to details who had worked quietly for years and to the military authorities. In this connexion he mentioned H.R.H. the Duke of Cambridge, Lord Wolseley, Sir Redvers Buller (the Adjutant-General), General Brackenbury, and especially Sir Coleridge Grove and the late Director-General of the Army Medical Service, Surgeon-General J. Jameson, the last-named of whom made a success by means of the bond of sympathy which existed between himself and the officers serving under him and the great civil profession of medicine without which what had been accomplished would

have been impossible. Coming to the personal part of the medical arrangements of the South African campaign he reminded his audience that when the war broke out two army corps were sent to South Africa and that the Director-General of the Army Medical Service, owing to the under-manning of the Royal Army Medical Corps, could only with difficulty provide a sufficient number of medical officers to accompany them, but later it was found that more army corps were required and a total force of 250,000 men had to be provided with medical aid. The question was how the great want was to be supplied. It was met, said Lord Northbrook, "by the patriotism of the people. Men had come forward from the universities and schools, the medical officers of the auxiliary forces had volunteered, men had given up their lucrative private practices, the colonies had supplied medical men, private hospitals had been organised, and the St. John Ambulance Association, of which the late Lord Wantage had been so prominent a member, had given its invaluable help in the nation's difficulty." The result had been that at the time of the publication of the Blue-book, the medical staff in South Africa consisted of 479 officers of the Royal Army Medical Corps, of nine consulting surgeons and physicians, of 385 civil surgeons, and 431 nurses, and, said Lord Northbrook, "I do not think that these were the maximum numbers, for in a speech not long ago Mr. Brodrick spoke of 700 admirable recruits which the medical profession had furnished." He extolled the way in which the professional work had been done in South Africa and said that in spite of difficulties which were considered incredible, the pluck, perseverance, and capacity of the Royal Army Medical Corps had carried them through. "No class of officers had had greater difficulties to contend with, yet none had achieved greater success." The Royal Commission had endorsed this verdict and the truth of it was recognised by impartial witnesses. Than this verdict no higher praise could be given. Individual members of the corps had won well-merited rewards, for of the greatest distinction which could be won by a soldier, the Victoria Cross, no less than four had been awarded to officers of the Corps—Lieutenant-Colonel W. Babtie, Captain E. T. Inkson, Captain W. H. S. Nickerson, and Lieutenant H. E. M. Douglas—besides promotions and other honours. They must, however, look to the future. The Royal Commission had recommended that an inquiry should be made into the medical arrangements of the army. Lord Northbrook said that he did not dare to offer an opinion on the questions involved, for he had no right to offer one, but it was right that Mr. Brodrick should carry out the intentions expressed and he hoped that the anticipations of the Secretary for War would be realised. Speaking at the dinner to the South African civil surgeons Mr. Brodrick had said that "they had an organisation on which might be founded not merely something which was effective, but something which, as their experience was most recent, entitled them to obtain a medical organisation for the army which would place them in the forefront of all European peoples." Lord Northbrook said that on the question of re-organisation of the corps he had two observations to make—one was that the staff of the Royal Army Medical Corps should be permanently increased, and the other was that its members should have opportunities granted them of keeping themselves up to the highest standard of professional knowledge. The great growth of medical science had necessitated specialists, and in the future special work and specialists would certainly increase. He saw no reason why the Royal Army Medical Corps should not have its own specialists—officers who had been afforded opportunities of studying under the best men and who themselves would become experts; such opportunities would ensure efficiency and attract some of the best men from the school of the corps. The second observation was that he hoped the committee's inquiry would extend to the working of the transport and the financial departments and to the working of the War Office itself in relation to medical matters. Referring to the teaching which the young officers had received at Netley he spoke of the advantage they had enjoyed in listening to Colonel Stevenson, than whom no one could inform them better of all the changes which had occurred in wounds due to the alteration in weapons. While, however, the care of wounded men was of the greatest consequence the records of this South African campaign had but endorsed the experience of former wars that disease worked more havoc than the bullet. He congratulated them on having had the opportunity of studying under Dr. Wright, of whose work he had himself some knowledge, for as a member of the Indian Plague Committee he had visited his laboratory, and he considered him to be a man who worked on the sound grounds of experimentalism. He had the confident hope that the progress of science would lead to increased prophylaxis, whether by inoculation or otherwise. Lord Northbrook concluded by recalling the scene in the Royal Victoria Hospital when their late beloved Queen near the end of her great career shed the light of her presence in the wards of the hospital and on the suffering soldiers there whom she had loved so well. No one of them would ever forget the late Queen's sympathy, and he knew the King would take the same kindly interest in the hospital and in his soldiers.

Sir JOSEPH FAYRER subsequently addressed a few words of congratulation to the young officers and thanked Lord Northbrook for his address.

The proceedings were brought to a close by Colonel CHARLTON, principal medical officer at Netley Hospital, who wished the young officers God-speed, and expressed the hope that they would in years to come look back on pleasant days spent at Netley.

The following lists show the positions of the young officers recommended for commissions in the respective services:—

ROYAL ARMY MEDICAL CORPS.

Surgeons-on-probation successful at both the London and Netley examinations.

		Combined marks.			Combined marks.
1	Lambelle, F. W.	5289	4	Beatty, M. C.	3947
2	Cahill, L. J. S.	4703	5	Welland, J. R.	3686
*3	Stevenson, W. C.	4165	6	Long, H. W.	3335

* Gained the De Chaumont prize.

Surgeons-on-probation recommended for commissions in the Royal Army Medical Corps.

		Netley marks.			Netley marks.
1	Ritchie, T. F.	2106	6	Rogers, H.	1636
2	Sampey, A. W.	1786	7	Harvey, W. J. S.	1608
3	Potter, T. J.	1778	8	Davis, W.	1570
4	Williamson, A. J.	1751	9	Hastings, J. C.	1426
5	Aylen, E. V.	1681	10	O'Donoghue, D.	1399

INDIAN MEDICAL SERVICE.

Surgeons-on-probation who were successful at both the London and Netley examinations.

		Combined marks.			Combined marks.
*1	Charles, G. E.	6168	15	Foster, H. B.	4630
†2	McKendrick, A. G.	5959	16	Butt, G. B.	4544
‡3	Moses, O. St. J.	5672	17	Kerans, G. C. L.	4507
4	Little, J. W.	5413	18	McConaghy, C. B.	4438
§5	Sumner, F. W.	5285	19	Illius, H. W.	4396
6	Nutt, H. R.	5234	20	Browne, E. W.	4390
7	Barnes, J. A.	5073	21	Christian, J. B.	4216
8	Ritchie, W. D.	5014	22	Murphy, A.	4161
9	Scott, N. E. H.	4914	23	Thompson, F. T.	4124
10	Fleming, J. K. S.	4873	24	Brassey, L. P.	3821
11	Hepper, E. C.	4819	25	Marr, C. F.	3843
12	Southon, C. E.	4803	26	Bose, S.	3761
13	Fowler, G.	4685	27	O'Neill, P. L.	3547
14	Husband, J.	4680			

* Gained the Herbert Prize of £20, the Martin Memorial medal, the Parkes Memorial medal, and the Second Montefiore prize.
† Gained the Maclean prize for clinical and ward work.
‡ Gained the First Montefiore prize.
§ Gained the Fayrer prize for Pathology.

COMPLIMENTARY DINNER TO SURGEON-GENERAL JAMESON, C.B.

MR. G. LENTHAL CHEATLE, one of the honorary secretaries, has sent to us the following list of names to be added to those which we published in our issue of June 15th, p. 1708, as those of members of the medical profession and others who have signified their wish to do honour to the late Director-General of the Army Medical Service:—The Right Hon. Lord Halliburton, Colonel Sir Howard Vincent, M.P., Sir Hugh Beevor, Bart., Sir John Furley, Sir Samuel Wilks, Bart., Dr. James Little, Regius Professor of Physic, University of Dublin; Dr. Ball, Regius Professor of Surgery, Trinity College, Dublin; and Mr. Thomas Bryant, Mr. Pearce Gould, Mr. H. H. Clutton, Surgeon-General R. Harvey, C.B., D.S.O., Surgeon-General W. R. Hooper, C.S.I., and Mr. A. D. Fripp, C.B., C.V.O. There is no need for us to wish the occasion success—success is already assured, and the dinner promises to afford remarkable witness to the appreciation in which Surgeon-General Jameson and his services to his country are held by the members of his profession.

THE MIDWIVES BILL.

LORD BALFOUR OF BURLEIGH, in moving the adoption of the report at the eighth annual general meeting of the Association for Promoting Compulsory Registration of Midwives, held at 47, Cadogan-square, London, S.W., on June 26th, said:—

I have no right to attend this meeting as a member of the Government, and you will please remember that I am here only in my private and unofficial capacity. The objects of this association came first under my notice before I became a member of Her late Majesty's Government. I never can forget the first beginning of the persuasion which was exercised upon me to bring this somewhat difficult and unpleasant subject before the House of Lords. I did so because when I looked into the case for the Bill I found it was so strong that it would have been a dereliction of duty if I had not done everything in my power to help on the cause. As to the use of deputations I may say that during six years of my official life I have had to deal with many deputations and I have not got a very profound belief in the utility of deputations. Perhaps that is because I see too much from the inside of the working of these matters. I have never in the whole course of my experience ever had to do with a case which on its pure merits, apart from all other considerations, seems to me to present such an overwhelming need for legislation. I myself think that many deputations know that they ought not to be granted what they ask for and a considerable proportion feel that it would not be good for them if they got what they demanded. That being my view of the ordinary case as presented by deputation I wish you to notice that the cause of your association is the one outstanding exception which justifies the most persistent and the most continual agitation until you are successful, and I agree with what Mr. Johnstone has told you that you have a very strong case indeed. You have greatly strengthened your position since the days when I first came into the association and you are, I think, assured, if you will only go on on the same lines, of a certain and not far distant triumph. One thing I am certain of is that you need not fear public discussion. The more the matter is discussed the greater will be the conviction of the extreme strength of your case. Your cause is that of the majority of the wives of the working men and of the more humble portions of the population of this country. The case against you is that of those who are interested in maintaining the existing state of affairs. I consider that those who have been midwives and who practise under that name are entitled to fair consideration. A large majority are competent and their interests must be considered, otherwise it would be unjust to those who are honestly endeavouring to make a living and who in the main are doing their very best. The fact, however, that there are grave and far-reaching abuses under the present condition of affairs makes it clear that no private interest ought to be allowed to stand in the way of reform. I would rather not speak of the other class who are interested in this proposed measure because I think you have dealt with it—I mean the professional opposition to your Bill. I consider that where it is not merely selfish it is foolish, because you do not want—and I think this is a point to be emphasised—you do not want to do anything to undermine professional etiquette or to attack the proper medical standing of professional men. I have always pointed out that the medical profession being beyond all others a humane and unselfish profession its first anxiety is to do the best for a patient at the earliest possible time for the saving of life. If, therefore, medical men are assisted by skilled midwives they would be more certain of having early information that danger exists than if the patients are attended by unskilled women ignorant of danger or possibly too selfish to trouble or perhaps afraid of allowing anything to be known. I believe it to be a necessity that in the classes concerned the attendance in these cases must be furnished by women for women. What you want to provide for is that minority of cases where danger can be foreseen and thus avoided; often it is a question merely of hours. I believe that in these circumstances the elementary training which your association seeks to secure for these attendants would make it more certain that the medical man would have the note of warning sounded in his ears and thus early intelligence would be furnished to those who can best remedy the danger. I was recently at the College for the Blind at Norwood and the director of the institution told me that on admission every child—and there are always some hundreds there—is examined by a skilled oculist. Experience over a long series of years leads this gentleman to say with certainty that about 72 or 73 per cent. of those who pass through the College need not have been sent there if they had enjoyed the benefit of proper care in their early years. I do not say that all these people by this early attention could have been made into really seeing people in the ordinary acceptation of the term, but they would have had the power of perception of light from darkness and of movement from absolute rest. I do not say that 70 per cent. of the cases of blindness are caused by improper care at birth, but certainly a large proportion are. I believe it amounts to about 30 per cent. Now, that fact of itself is most startling and I believe it to be an undoubted fact and one that might well be included in the pamphlets of the association. You should keep this Bill out of the morass of Government measures and go on as you have been doing. You should endeavour to get a discussion on the earliest possible Wednesday next session and then strive to take off as much of the opposition to it as you can. Thereupon pressure can be brought to bear in the proper quarters on those who manage these things so as to give you a chance. I can only assure you that if opportunity offers for the consideration of the possibility of giving this most serious and necessary legislation a helping hand from the inside you may, so far as my duty allows it, always count upon me. There are, however, limitations, and you must remember that if I cannot do all that I would like to do it is certainly not from want of interest, and I can assure you that I wish your association the earliest possible success.

ANNUAL DINNER OF THE EPIDEMIOLOGICAL SOCIETY OF LONDON.

THE dinner to celebrate the fifty-first anniversary of the foundation of this society was held on June 28th at the Grand Hotel, Trafalgar-square, W.C., Dr. Patrick Manson, C.M.G., F.R.S., the President of the society, occupying the chair. The guests of the society were Sir William S. Church, Bart., President of the Royal College of Physicians of London; Sir Montague Ommanney, K.C.M.G., Permanent Under Secretary for the Colonies; and Professor T. Clifford Allbutt, F.R.S. Among others present were Dr. W. A. Bond, Dr. G. S. Buchanan, Dr. H. T. Bulstrode (honorary secretary), Dr. W. H. L. Copeland, Dr. A. D. Cowburn, Major A. M. Davies, R.A.M.C., Dr. J. R. Delmege, Dr. W. E. Fletcher, Sir Francis Lovell, C.M.G., Dr. Bruce Low, Dr. Hector Mackenzie, Mr. Shirley Murphy, Mr. W. C. C. Pakes, Dr. Franklin Parsons, Mr. F. G. Parsons, Dr. E. C. Seaton, Dr. Arthur Shadwell, Dr. W. R. Smith, and Dr. B. A. Whitelegge.

Sir William Church, in proposing the toast of "The Imperial Forces," dwelt upon the heroism of our troops of all grades at Ladysmith, Graspan, and other places. The behaviour of our soldiers under most trying climatic conditions clearly demonstrated that there were no indications of degeneration.—Major A. M. Davies, R.A.M.C., in replying for the army, referred to some of the difficulties with which the Army Medical Service had recently been confronted in South Africa. It was impossible to wage war without some inconvenience and hardship, and obviously when a hospital intended to provide for at most 500 men was called upon to deal with double or treble that number, the elasticity of the administrative machinery was liable to become somewhat strained.—Dr. W. R. Smith, who replied for the auxiliary forces, pleaded for a more careful study of the causes and behaviour of disease in modern warfare and for the necessity of the presence of independent and skilled epidemiologists from the beginning of a campaign.—Dr. Whitelegge, His Majesty's Chief Inspector of Factories, who proposed "The Visitors," drew attention to the manner in which fresh infectious processes were daily being brought to light, and he added that quite recently his colleague, Dr. T. M. Legge of the Home Office, had discovered a new infection connected with the fish-curing industry. There was still much to be done in studying the diseases and drawbacks connected with industrial occupations.—Sir Montague Ommanney, in replying

for the visitors, expressed his deep sympathy with the efforts of the Epidemiological Society and its investigations. Our vast colonial empire brought us into contact with innumerable problems as regards the public health, and the conditions which obtained in some of our Crown colonies were such as to sap continuously the "energy of initiation." No one, he assured them, felt a keener interest in the importance of improving the condition of our more unhealthy colonies than Mr. Chamberlain, and he felt sure that the Colonial Office would continue to extend a helping hand to epidemiological research.—Professor Clifford Allbutt thought that in the near future preventive medicine would take a very leading place in the medical profession, and it was probable that the profession as a whole would occupy a more definite relation to the State than was the case at the present moment. He welcomed, with other speakers, the great change which had come over the administration of the Colonial Office in the direction of encouraging original research.—Dr. Patrick Manson, in proposing the toast of "The Epidemiological Society of London," pointed out that the work that the society performed was of a quiet and unostentatious character, but he trusted that such work was not without its value. The science of epidemiology was, he thought, in an extremely flourishing condition and its energy had received cordial support from the Colonial Office. He regarded it as almost providential that at the present time when there was so much work to be done and when apparently the psychological moment had arrived they had at the Colonial Office Mr. Chamberlain and at the Royal Society Lord Lister. Epidemiology had in the past been somewhat warped from the fact that man had for a long time regarded the infectious diseases as his own prerogative, but they had now to recognise the important fact that they shared many diseases with the lower animals, and it was only when this fact was accorded its proper value that the natural history of infectious disease would be properly comprehended. Dr. Manson drew attention to the large number of scientific expeditions which had recently left our shores, and he added that the Epidemiological Society was now assisting in the despatch of an expedition to the Pacific Islands to study some of the problems connected with malaria. The Mercers' Company had made a liberal contribution towards the funds, and he trusted that if the generous example set by the Liverpool merchants in assisting the Liverpool School of Tropical Medicine were followed by some of our wealthy London merchants the expedition in question would be able to start at the end of the year.—Sir Francis Lovell, proposed "The Chairman," whose name was, he added, regarded in the colonies as "synonymous with malaria."—Dr. Bulstrode, who replied to the toast of "The Officers of the Society," reminded his hearers of the remark made by Professor Haffkine at a recent dinner to the effect that inasmuch as the opportunities of the British empire for the prosecution of epidemiological research were altogether unique, the world of science had a right to expect that the English Government would make proper use of such opportunities.

PLAGUE IN EGYPT.

Two further reports issued by the Director-General of the Egyptian Sanitary Department have been forwarded to us. They run as follows:—

"Since my report addressed to your Excellency on June 9th we have received no information of any towns other than Zagazig and Minieh being infected with plague.

The total number of cases of plague reported from these two places during the week was 18, 17 from Zagazig and one from Minieh; 14 of these were admitted to hospital and four were found dead outside hospital. In addition five deaths took place among the patients in the Government hospital. No notice of any European being attacked by the disease has been received during the week.

The town of Zagazig is no doubt somewhat seriously infected, and from inquiries that have been made by Major Garner it would appear that for some time previously to the discovery of the first cases many of the inhabitants of the different quarters of the town had noticed rats in a dazed condition and dying; this mortality among the rats was first remarked at the time of a heavy rainfall in May, the date of which was May 14th.

The staff at Zagazig has been largely increased during the week, and the general cleansing and disinfection of the whole town is being carried out rapidly."

During the week ending June 23rd 25 cases of plague have been reported throughout Egypt, among which eight deaths have occurred—six in hospital and two out of hospital. Of these 25 cases 19 have occurred at Zagazig, two at Alexandria, one at Minieh, two at Kafr El-Mansura (a small suburb of Minieh), and one at Port Said. Of the deaths four occurred in hospital at Zagazig; two patients were found dead out of hospital in the same town, one died in hospital at Minieh, and one in hospital at Port Said.

During the last few days there has been a marked improvement in Zagazig, and I trust that this will be maintained, indeed I have every reason to think that it will be. Only one case followed by death has occurred in the town of Minieh itself; the other two cases shown as coming from Minieh, as is mentioned above, occurred in a small Kafr close to Minieh. Every house in this Kafr has been thoroughly disinfected and limewashed and I do not anticipate any further extension of the disease there.

The case found at Port Said occurred in the person of a young Greek who for some time had been out of employment and had lived in a dirty underground cellar. This single case, occurring after so many months of immunity at Port Said, was possibly due to rat infection.

The mortality among the cases treated in hospital is not high and reports reach me that most of the cases remaining under treatment in hospital are progressing favourably.

Suspicious cases have been reported from several different places during the week; each case has been carefully examined and not one of them has proved to be a case of plague."

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 33 of the largest English towns 6377 births and 3247 deaths were registered during the week ending June 29th. The annual rate of mortality in these towns, which had been 14·5 and 15·0 per 1000 in the two preceding weeks, declined again last week to 14·8 per 1000. In London the death-rate was 13·9 per 1000, while it averaged 15·4 in the 32 large provincial towns. The lowest death-rates in these towns were 8·5 in Cardiff, 9·3 in Croydon, 9·8 in Leicester, and 10·1 in Bristol; the highest rates were 17·8 in Oldham, 19·1 in Newcastle, 20·2 in Liverpool, and 21·7 in Preston. The 3247 deaths in these towns included 399 which were referred to the principal zymotic diseases last week, against 357 and 356 in the two preceding weeks; of these, 114 resulted from measles, 83 from diarrhœal diseases, 81 from whooping-cough, 53 from diphtheria, 46 from scarlet fever, 21 from "fever" (principally enteric), and one from small-pox. No death from any of these diseases was registered last week in Huddersfield; in the other towns they caused the lowest death-rates in Brighton, Plymouth, Cardiff, and Oldham, and the highest rates in Wolverhampton, Birkenhead, Salford, Blackburn, Bradford, and Sheffield. The greatest mortality from measles occurred in West Ham, Wolverhampton, Birmingham, Birkenhead, Hull, and Gateshead; from scarlet fever in Preston; from whooping-cough in Swansea, Wolverhampton, and Bradford; and from diarrhœal diseases in Liverpool, Bolton, Blackburn, and Sheffield. The mortality from "fever" showed no marked excess in any of the large towns. The 53 deaths from diphtheria included 18 in London, eight in Sheffield, five in Bristol, and three in Manchester. One fatal case of small-pox was registered in London, but not one in any other of the 33 towns; four small-pox patients were admitted into the Metropolitan Asylums Hospitals during the week ending July 29th, and five remained under treatment on Saturday last. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 2821, against numbers increasing from 1522 to 2707 on the nine preceding Saturdays; 408 new cases were admitted during the week, against 314, 323, and 368 at the end of the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had declined from 240 to 150 in the four preceding weeks, further decreased last week to 171, and were 42 below the corrected average. The causes of 45, or 1·4 per cent., of the deaths in the 33 towns were not certified, either by a registered medical practitioner or by a coroner.

All the causes of death were duly certified in Bristol, Salford, Bolton, Newcastle, and in 12 other smaller towns; the largest proportions of uncertified deaths were registered in Liverpool, Manchester, Preston, and Sunderland.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 16·9 and 18·6 per 1000 in the two preceding weeks, declined again to 17·3 per 1000 during the week ending June 29th, but showed an excess of 2·5 per 1000 over the mean rate during the same period in the 33 large English towns. Among these Scotch towns the death-rates ranged from 9·5 in Perth and 10·0 in Leith to 18·6 in Glasgow and 19·0 in Dundee. The 552 deaths in these towns included 30 which were referred to whooping-cough, 25 to measles, 24 to diarrhœa, four to diphtheria, two to scarlet fever, and one to small-pox, but not one to "fever." In all, 86 deaths resulted from these principal zymotic diseases last week, against 75 and 97 in the two preceding weeks. These 86 deaths were equal to an annual rate of 2·7 per 1000, which was 0·7 per 1000 above the zymotic death-rate during the same period in the 33 large English towns. The fatal cases of whooping-cough, which had been 32 and 44 in the two preceding weeks, declined again last week to 30, of which 14 occurred in Glasgow, seven in Edinburgh, five in Dundee, and two in Paisley. The deaths from measles, which had been 17 and 25 in the two preceding weeks, were again 25 last week, and included 15 in Glasgow, four in Dundee, two in Leith, and two in Greenock. The fatal cases of diarrhœa, which had been 18, 17, and 13 in the three preceding weeks, rose again last week to 24, of which 11 were registered in Glasgow, four in Edinburgh, three in Dundee, three in Paisley, and two in Greenock. The deaths from diphtheria, which had been three in each of the two preceding weeks, increased to four last week, and all occurred in Glasgow, where the two fatal cases of scarlet fever and the death from small-pox were also registered. The deaths referred to diseases of the respiratory organs in these towns, which had been 101 and 92 in the two preceding weeks, rose again last week to 95, but were slightly below the number in the corresponding period of last year. The causes of 27, or nearly 5 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been 19·6 and 20·2 per 1000 in the two preceding weeks, declined again to 18·2 during the week ending June 29th. During the 13 weeks ending on that date the death-rate averaged 24·7 per 1000, the rates during the same period being 14·7 in London and 20·8 in Edinburgh. The 131 deaths of persons belonging to Dublin registered during the week under notice were 14 less than the number in the preceding week, and included five which were referred to the principal zymotic diseases, against eight and 10 in the two preceding weeks; of these two resulted from whooping-cough, one from scarlet fever, one from diphtheria, and one from "fever." These five deaths were equal to an annual rate of 0·7 per 1000, the zymotic death-rate during the same period being 1·5 in London and 2·0 in Edinburgh. The fatal cases of whooping-cough, which had been five, three, and three in the three preceding weeks, declined last week to two. The 131 deaths in Dublin last week included 24 of children under one year of age and 41 of persons aged upwards of 60 years; the deaths both of infants and of elderly persons slightly exceeded the numbers recorded in the preceding week. Four inquest cases and one death from violence were registered; and 47, or more than one-third, of the deaths occurred in public institutions. The causes of three, or more than 2 per cent., of the deaths in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Surgeons: A. J. Wernet, and H. C. Woodyatt to the *Pembroke*; D. V. Lowndes and A. R. Thomas to the *Wildfire*; C. E. C. Stamford, E. F. Ellis, and P. F. Alderson to the *Duke of Wellington*; T. F. O'Keefe, G. C. C. Ross, and J. Thornhill to the *Vivid*; M. Cameron to the *Harrier*; and R. D. Jameson to the *Northampton* for the *Cleopatra*.

ROYAL ARMY MEDICAL CORPS.

Captain H. A. Hinge has joined at Aldershot for duty. Lieutenant-Colonel G. Coutts has been posted to the Western District. Lieutenant-Colonel W. Finlay, retired list, has been appointed to the medical charge of the troops at Jersey.

SOUTH AFRICAN WAR NOTES.

The following officers are on passage home:—Major H. T. Knaggs, R.A.M.C., and Civil-Surgeon E. C. Taylor.

The following officers have been discharged from hospital to duty:—Lieutenant-Colonel R. H. Nicholson, R.A.M.C., Lieutenant-Colonel W. P. Squire, R.A.M.C., Lieutenant G. G. Delap, R.A.M.C., Civil-Surgeon Glasse, and Civil-Surgeon John Alexander Black.

The wounded and sick who have passed through the Victoria Hospital in Rhodesia have, in token of their gratitude for the care bestowed upon them, subscribed £43 for a piano, to be presented to the hospital, for the use of the nurses.

Civil-Surgeon Wilbond is reported out of danger (June 28th).

The *Times* publishes the following:—"'In Arduis Fidelis' writes from No. 10 General Hospital, Norval's Point, under date May 15th: 'The Volunteer R.A.M.C., who have been out here 15 and 16 months doing constant work without any rest at all, are still in South Africa, and they cannot get the slightest attention paid to their repeated question as to the probable date of their return.'"

AFFAIRS IN SOUTH AFRICA.

The information from the seat of war in South Africa continues, and it seems likely to continue for some time yet, to be of much the same nature as it has been. The recrudescence of activity on the part of the Boers, however disappointing, does not appear likely to prove very important; their raiding attacks are, as a rule, futile as regards any advantage to themselves, and their chronic losses in the way of cattle, food, forage, and munitions of war must be "totalling up" to a very large aggregate. Fortunately, this country has command of the seaboard, and, costly as the process is proving, the supplies for the British are practically unlimited. We are not going into the question of the "concentration camps." Everybody regrets the sickness, the misery, and the suffering which these have entailed. But if the Boer families, forsaken by their natural protectors in order to fight against us, had been left to their fate they would have perished miserably on the veldt. As it was, every Boer farm formed also a little arsenal and commissariat depôt and a source of secret information to be used against us. No other course seemed to be open to us than to move the Boer families into camps. Their numbers, their ignorance and neglect of all sanitary precautions, and the raids made by the Boers on the railway which was the source of their and our own supplies, made the undertaking of accommodating, feeding, and providing for so large a number of people a very formidable one and full of difficulties. Would any other nation have made the attempt to succour and to do the best for them?

THE REORGANISATION OF THE ARMY MEDICAL SERVICE.

The committee of experts to consider a scheme which has been drawn up by Mr. Brodrick for the future organisation of the Army Medical Service will consist of the following members:—Dr. Howard H. Tooth, C.M.G., representing St. Bartholomew's Hospital; Mr. George H. Makins, C.B., St. Thomas's Hospital; Mr. Alfred D. Fripp, C.B., Guy's Hospital; Sir F. Treves, K.C.V.O., C.B., London Hospital; Dr. Alexander Ogston, Scotland; Lieutenant-Colonel A. H. Keogh, C.B., R.A.M.C., Ireland; Dr. E. C. Perry, Senate of London University; Surgeon-General W. R. Hooper, C.S.I., I.M.S., President of the Medical Board, India Office; and two officers to represent the army, who will be named by the Commander-in-Chief. The secretary will be Major H. E. R. James, R.A.M.C., F.R.C.S. Eng., and Mr. Brodrick will take the chair of the committee.

We understand that the hospital ship *Maine*, which is to be fitted out for further service under the Admiralty, will have a merchant crew with a naval medical staff.

Correspondence.

"Audi alteram partem."

"UNBOILED v. BOILED MILK."

To the Editors of THE LANCET.

SIRS,—Will you allow me to reply briefly to Dr. Clement Dukes's letter which appeared in THE LANCET of June 29th on the subject of boiled and unboiled milk? Dr. Clement Dukes is a great authority on pediatrics and the question he raises is a very important one in prophylactic hygiene.

During the last 10 years in Paris we have been studying the nutritive value of sterilised milk in making large distributions of milk—from 50 to 150 litres a day—in special consultations called *gouttes de lait* (drops of milk), young infants being brought to be inspected by the doctor once or twice a week. They are weighed, their weight is noted on a card, and the mothers receive advice as to the giving of milk, its dilution (if required), and the different quantities to give to the child which vary with its age and its weight. In these consultations, which afford a large ground of experience and study of the artificial feeding of infants, some, following M. Budin's example, use milk which they sterilise in Paris with Soxhlet's system; others, like myself at the Dispensaire de Belleville, use milk sterilised at 115° C., by industrial proceedings in large establishments in Normandy. This milk is brought to Paris in bottles of half a litre and less, and can be kept several days until it is used without its sterilisation being effected.

In these conditions we have given this milk to a number of infants carefully looked after, and we have noted neither rickets nor infantile scurvy with either method of sterilisation adopted by us. In five years I have had about 200,000 litres of industrially sterilised milk distributed to over 1000 infants and I have never observed a single case of Barlow's disease. Rickets is very exceptional, even among the atrophic children whom we generally manage to rear artificially with sterilised milk. The only accidents noted not infrequently are anæmia with paleness of the teguments and habitual constipation, but it is difficult to fix what share of this is due to the artificial feeding and what to unhealthy dwelling conditions in the poorer classes, for these troubles are more common in winter than in summer. Infantile scurvy is very rare in France. Ten cases have been collected and published in the inaugural thesis of Dr. Paugam and seven of these can be imputed to "humanised milk" by Gaertner's method. So it would seem that the modifying of milk rather than its sterilisation does the harm. Farinaceous mixtures and milks artificially made up in special laboratories by the method of Morgan Rotch seem to us most dangerous food to give to young infants even if well sterilised. But simply to sterilise natural milk, even at 115 C., does not, in my opinion, make it lose its nutritive qualities as Dr. Clement Dukes seems to think. We have brought up a large number of healthy children, and even atrophic ones, with sterilised milk. The tracings of their growth, without being as perfect as in the case of infants nursed by their mother, are nevertheless very satisfactory in general.

In early infancy the presence of pathogenic germs, tuberculous, typhic, diphtheritic bacilli is not alone to be feared. The possibility of these infections is more to be considered in schools, colleges, &c., than in our infants' department. Saprophytes of all kinds that pollute milk and make it ferment in a very complicated way in altering either the lactose or the casein, &c., are particularly dangerous for the digestive organs of very young children. We see this only too often in Paris during the hot summer months when the rate of infantile mortality reaches 250 or 300 a week; the children of the poorer classes receive milk purchased at the lowest possible price at the nearest dairy or from sellers who go from door to door. It is generally fermented, often adulterated, water is added, &c. Fraud is practised on milk more than on any other product, and can be but with difficulty repressed in large towns. That is why in Paris I give the preference to industrially sterilised milk that reaches us in hermetically closed bottles sealed with paraffined corks which cannot be tampered with. In large centres of population where the carriage of milk is slow and complicated, the milk passing through so many hands before reaching the consumer, we must first of all manage to give our infants a *pure*, unfermented, unsophisticated milk, and the simplest way to procure this is to have recourse to a good industrial brand of milk sterilised in the country, just as one orders a well-known brand of champagne which one knows to deserve its reputation. In this way we generally preserve infants from summer diarrhœa, and when cases do occur they are almost always benign.

In the country, when one can obtain good fresh milk, being certain of the honesty of the provider and of the healthy condition of his cows, there is no fear of pathogenic germs, and if the milk is newly drawn there can be no fermentation; in these conditions it can safely be given to young infants. But if we reflect we come to the conclusion that unless one has a farm and cows of one's own and under personal supervision it is not safe to give one's confidence (and that not for a day but for a whole year and more) to any dealer who may have his shortcomings.

The boiling and sterilisation of milk are but a *pis aller* it is true, but neither has the inconveniences or the dangers attributed to it, which one would be more justified in attributing to food mixtures and modified milks. The milk problem is an extremely complicated question and one which we can only hope to elucidate by long and patient researches and with a suitable field of observation at our disposal. The same milk that will be poisonous for very young infants may not, or may scarcely, affect children from five or six to 12 years of age, who already resemble adults in a certain degree. At that age the gastro-intestinal ferments have probably a greater bactericidal power than in newly-born children whose gastro-intestinal functions are as superactive as they are unstable. The results of our experience in Paris in our "drops of milk" forces us to adopt sterilised milk as an absolute necessity if we wish to preserve infants from serious gastro-intestinal disorders and thus to diminish the rate of infantile mortality.

I am, Sirs, yours faithfully,

DR. G. VARIOT,
Médecin de l'Hôpital des Enfants Malades, Paris.

July 2nd, 1901.

To the Editors of THE LANCET.

SIRS,—I cannot believe that Dr. Clement Dukes can have inspected many farm dairies or he would never advocate the use of unboiled milk, whatever is lost in the nutritive value of the milk by boiling. The risk to children is far too great, and until some stringent laws are passed and enforced requiring that every dairy farm shall be conducted under definite approved sanitary rules and officially inspected I think the profession should advise that all milk used as food for infants should be first boiled or sterilised. I believe that THE LANCET has more than once advocated this course. I quite agree with Dr. Dukes that if you are absolutely certain of the supply of milk raw milk is far better than boiled milk as a food for children, but I cannot agree with him from very ample practical experience "that the nutritive value of milk is very largely diminished by boiling." It is, as I have already agreed, diminished but not *very largely*. I have seen many cases of very weakly children reared on milk which has always been sterilised under my direction and the results have been very good. Of course, I am speaking about London. Dr. Dukes, from his remarks concerning his practical experience, is speaking about the Rugby district where I have always heard there is an excellent supply of pure milk, and doubtless Dr. Dukes's ever-watchful eye has made the dairy-keepers very careful as to their sanitary arrangements for many a mile round. But for the profession to advise the use of raw milk for children in London and other large towns, with the risk of its being contaminated by the bacillus tuberculosis, the bacillus typhosus, the bacillus diphtheriæ, or the bacillus coli communis, I confess in my opinion would be nearly criminal whatever is lost in the nutritive value. We can supply the deficiency.

I am, Sirs, yours faithfully,

THOMAS DUTTON, M.D. Durh.

Manchester-square, W., June 28th, 1901.

To the Editors of THE LANCET.

SIRS,—Feeling strongly that the conclusion arrived at by Dr. Dukes, and expressed in his letter which appears in THE LANCET of June 29th, p. 1859, would, if uncontradicted, do an immense amount of harm, and as also the "facts" he relies on are not "facts" in the opinion of many well qualified to judge, I venture to ask you to insert this letter.

If there is any one "fact" in the whole province of medicine which has become accepted on the experience of

many years and in every part country more than any other, it is the "fact" that milk is capable of carrying and disseminating disease. This has been proved up to the hilt in the investigation of numberless epidemics by the most eminent men in our profession, and the attention which has been called to the subject by them has resulted in an enormous saving of life and suffering.

Dr. Dukes asks the profession to cast away its universal experience in favour of the experience of one man accustomed only to the care of the boys in a very high-class country school in which the hygienic and other surroundings are perfect and the boys themselves of the strongest physique. I would wish to point also that this dangerous and retrograde view is advanced in the face of the recent experience at Glasgow and other large towns, where the mortality of the children has largely decreased by the sale of sterilised milk by the municipalities. Dr. Dukes's statement that "the nutritive value of milk is largely reduced by boiling" is entirely unproved, and "that this is true also of sterilised milk" is entirely the reverse of the fact. The nutritive value of milk is entirely unchanged either by boiling in a water-jacket, as in the ordinary milk-boilers now almost universally used, or by sterilisation by heat.

Of course, burnt milk heated carelessly in a plain saucepan is not only unpleasant but is innutritious, but this is no reason why people should be asked to give up a harmless precaution which has been proved over and over again to be most valuable in preventing infectious disease when it is absolutely impossible to know the source of the milk-supply or to keep such source, even if known, under supervision. I have myself traced three cases of enteric fever to the consumption of unboiled milk at country railway stations, and in one epidemic of scarlet fever to my knowledge every house attacked received its milk-supply from one dairy, and at that dairy it was found that the cows were milked by a man who had three cases of scarlet fever in his cottage.

I am, Sirs, yours faithfully,

ALBERT BENTHALL, F.R.C.P. Edin.

Cockspur-street, Pall-Mall, June 29th, 1901.

To the Editors of THE LANCET.

SIRS,—Dr. Clement Dukes has raised a question of the greatest practical importance and his authority lends especial weight to his opinion. As one whose duties include the advising of diet for a large number of infants and young children in a crowded district in London and who invariably orders milk to be boiled I should like to ask: 1. Whether the gradual exposure of milk to a temperature of 212° F.—i.e., short of its own boiling-point—injures its nutritive properties materially? 2. Whether Dr. Dukes's happy experience of freedom from epidemic disease at the school for which he acts may not be due in large part to the power of inspection and control of the milk-supply which is possible in such an institution? 3. Whether, in dealing with a crowded urban community where the milk-supply is various and cannot be efficiently controlled, boiling the milk or heating it to near boiling-point does not still offer the least of two evils and save more lives by the prevention of tubercle and of the acute specific fevers than are lost by the injury to the nutritive value of the milk?

I am, Sirs, yours faithfully,

Finsbury-square, E.C., June 28th, 1901. R. HINGSTON FOX.

To the Editors of THE LANCET.

SIRS,—It is refreshing to find such men as Dr. Vivian Poore and Dr. Clement Dukes protesting against the habitual use of boiled milk, for it is high time an outcry should be raised against such a detrimental practice. For myself I have persistently denounced the boiling and sterilising of milk and can only say I have never had cause to regret having done so. If cows really spread tuberculous disease to the extent which some medical men assert then I would say, since there has been no inspection of cows till of late years it is a wonder there is a single family in Great Britain free from this disease. Years ago it was said that consumption had greatly diminished in the fen country owing to increased drainage, but how did the decline take place if it was daily being disseminated by the ingestion of tuberculous milk? If tuberculous disease has increased so much of late years, then such prophylactics as purer air (provided as it has been by open spaces and diminished overcrowding), better food, and better clothing have proved more or less failures, and, moreover, little can be said for the open-air treatment of consumption, since even the cows have been fed upon fresher and more natural food, and also less confined in close, pent-up sheds. What we really want is, as Dr. Clement Dukes says, more complete and efficient inspection all the way round.

I am, Sirs, yours faithfully,

Bexhill. F. P. ATKINSON.

To the Editors of THE LANCET.

SIRS,—Dr. Clement Dukes has raised a very important question in his letter on this subject in THE LANCET of June 29th, p. 1859, and I am glad he has done so because, doubtless in common with many others, I have had growing doubts as to the wisdom of advising parents to use sterilised milk—doubts which have partly arisen from experiencing some of the evil results to which Dr. Dukes alludes. I do not write with any idea of combating what he has said, but only in the hope that the subject may not be allowed to drop without the discussion it merits. Perhaps the question is mainly of importance as affecting the feeding of infants. Dr. Dukes's position is that in protecting them from certain possible dangers we are subjecting them to other positive evils. The main danger from which the profession has been anxious to protect them in advising the boiling of milk is tuberculosis, for it is the one most constantly present, and apart from this our advice to parents would possibly have been to boil milk only during the prevalence of epidemics of scarlet fever, diphtheria, &c. That this danger of tuberculosis is very generally present is shown by various investigations which have been made—e.g., one made by the late Professor Kanthack and Dr. Sladen into the milk supplied to the various colleges of Cambridge, in which they found tubercle bacilli present in more than 50 per cent. of the different supplies.

On the other hand, the question arises whether, though sterilised milk has been very largely used during the last few years, the cases of evil resulting therefrom have been really numerous; or, in other words, whether the danger which results from boiling milk, though undoubtedly a possible one, is as certain or general as, I gather, Dr. Dukes believes, or sufficiently so to make us cease to advise the boiling of milk. But even supposing that it is, a further question arises, and that is whether we may not avoid this danger in some other way than by ceasing to sterilise milk—as, for instance, by an addition to the milk after boiling which shall make up for the deleterious change, whatever it is, which the boiling has caused. And this is surely a field for profitable research; for at present, so far as my knowledge goes, it is uncertain what this change is. The danger to seamen arising from the absence of fresh food has been met otherwise than by doing away with preserved food.

Though, as I have said, the question is chiefly of importance in infant feeding, it is also worth considering whether the same danger threatens older children, in whose diet milk takes a subsidiary place; or whether, when they are of an age to take a mixed diet with plenty of other fresh food we may not protect them from the dangers of contaminated milk without substituting dangers in other directions.

I am, Sirs, yours faithfully,

Cambridge, June 28th, 1901. ARNOLD C. INGLE.

To the Editors of THE LANCET.

SIRS,—I have only just read Dr. Clement Dukes's letter on boiled milk, and so strongly do I feel on the matter that I feel it a genuine duty to our infant and invalid population to add whatever small weight of influence I may possess into the same scale with Dr. Dukes. My out-patient department at the London Hospital consists to a very considerable extent of babies, and it is simply heartrending to see the numbers of such helpless creatures who are made peevish, fretful, and even seriously ill by the pernicious effects of boiled milk on their nutrition. I heartily and absolutely agree with Dr. Dukes that it is in more stringent precautions against *the entrance* of evil-minded microbes that we must find our best safeguards against the spread of infection by milk, and not in the destruction of them after they have gained entrance by processes which most certainly reduce by a large percentage the nutritive qualities of the article.

I am, Sirs, yours faithfully,

FRED J. SMITH,

July 3rd, 1901. Physician to the London Hospital.

To the Editors of THE LANCET.

SIRS,—May I ask Dr. Clement Dukes to give more fully his grounds for the statements made in his letter to you last

week: (1) that the nutritive value of milk is largely diminished by boiling; and (2) that this is also true of sterilised milk? In regard to the case he quotes he does not say whether the "anti-scorbutic food" which caused the child's recovery from scurvy consisted *solely* of unboiled milk or whether anything else, which might have been at any rate partially responsible for the recovery, was included. Again, the absence of tuberculous disease from infection by a milk-supply, which is probably from a carefully selected source, in the boys of a "large public school" where hygienic conditions are so good and outdoor life so universal, is no very strong argument against its transmission to the less fortunately circumstanced children of our large towns.

I am, Sirs, yours faithfully,

June 28th, 1901. M.B., CH.B.

THE CONTAMINATION OF POST-OFFICES.

To the Editors of THE LANCET.

SIRS,—As Parliamentary secretary to the Postal Telegraph Clerks' Association I shall be grateful if you can give me a little space for the purpose of explaining the motives which prompted the members of my organisation to ask Sir W. Foster to take charge of our clause in the new Factory Bill. We have no desire to attack the medical department of the Post Office, but we are anxious to secure sanitary conditions in the telegraph offices. The tone of the annotation in THE LANCET of June 29th seemed to convey the impression that you concurred in the view that improvement was necessary, but that the present system of inspection is sufficient to meet the needs of the case. But the question that arises is, Has the present system succeeded? Let the Inter-Departmental Committee (Tweedmouth) answer. It made inquiries at 182 offices and as a result admitted that 69 were in an insanitary condition. Defective ventilation, bad drains, and urinals and water-closets near dining-rooms were the main charges against the Post Office and they were admitted. If the system was satisfactory how came it that a committee of inquiry such as this could report, "Much still requires to be accomplished before the post-office buildings of the country will be placed in a universally satisfactory condition as regards their sanitation?"

Two instances will suffice to show that independent investigation is needed. The staff of the General Post Office, London, had complained of insanitary conditions for a long period, but they appealed to deaf ears. When, however, the Tweedmouth Committee visited the building and Dr. W. H. Corfield was asked to make a special report the building was condemned as "overcrowded, incommodious, and insanitary." The staff of the Chief Telegraph Office also complained of insanitation, unsafe exits, and overcrowded dining-rooms. Again the official reports denied the existence of the grievances. After much stir in the public press, many questions in Parliament, and a personal inspection by the Duke of Norfolk, it was found that most of the charges were true and alterations involving a great outlay were made.

The Tweedmouth Committee laid down several "canons" for the guidance of the officials. Among others were: a due amount of cubic air-space; that all outside doors should open into porches or other like arrangement and never directly into the rooms where the staff are at work; that heating should be by hot-water pipes or hot air; that lavatory accommodation should always be supplied and that they should never communicate directly with any retiring or other room; and that having regard to the dusty nature of the work of a post-office the walls, &c., of all offices should be more frequently washed and cleansed than at present is considered necessary.

My association collects facts regarding telegraph offices only, but Sir W. Foster and Sir C. Dilke have been supplied with 50 foolscap sheets of typewriting containing details of cases in offices throughout the kingdom where practically nothing has been done to give effect to these "canons." I am aware that the fault is said to rest with the Office of Works, and it was stated in 1897 that it should be "held to be imperative on the Office of Works to carry out all the demands concerning any local insanitary condition made by the medical officers through the correct departmental channel." Mr. Balfour assured the House of Commons on June 7th that every one of the Tweedmouth recommendations had been carried out, and if he is right then the Office of Works naturally obeys this "imperative" injunction.

But telegraph clerks cannot penetrate into the official secrets. We know that insanitation exists and we want it remedied. At present we have but two methods: (1) by means of a petition; and (2) by drawing Parliamentary attention to the case. Both are cumbersome and unsatisfactory and are a source of constant friction between the supervisory officials and the ordinary staff. We also know that new post-office buildings are not constructed with a view towards studying the health of the workers. Only last year Dr. Ransom of Nottingham suggested that insurance companies before insuring the lives of post-office employés should insist upon some reform, and his remarks were based upon his knowledge of the unsatisfactory condition of the new Nottingham post-office. I cannot trespass further upon your valuable space. But I wish to say this: what telegraphists desire is that the sanitation of the offices in which they work should be placed on a proper footing. It is too much to hope that the English Government will attempt to follow the example of the French administration, but as we have so often failed to secure reform by appealing to the authorities we must now help ourselves.

The Factory Bill gives us the opportunity and we shall try our utmost to secure some concession. Failing that, on each occasion the vote for Government buildings is taken in the Commons we shall make a fight. The only difficulty that exists is that a post-office is neither a factory nor a shop and the Government may escape by means of a legal quibble.

I am, Sirs, yours faithfully,

S. W. BELDERSON.

Grantham-road, London, S.W., June 29th, 1901.

"LEGISLATION AGAINST NATIONAL INTEMPERANCE."

To the Editors of THE LANCET.

SIRS,—Dr. Archdall Reid seems to me to be much too dogmatic in his statements. In discussing a question which is so far from being decided as that of the heredity of acquired characters I think that it is the part of a wise man to state his conclusions as probably or apparently true, rather than to make positive statements which may be upset by fresh evidence as soon as they have been made. Dr. Reid says that there is no more reason for supposing that muscle or liver or any other of the somatic cells are concerned in reproduction than for supposing that germ cells are concerned in the production of motion or of bile. The argument does not touch the problem. The question is not whether somatic cells are concerned in reproduction, but whether changes in the somatic cells may affect the powers of development or, to use a convenient term, the determinants, of the reproductive cells. Now, it seems to me that if one says that there is no more reason for supposing that the somatic cells can affect the properties of the germ cells than for supposing that the germ cells can affect the properties of the somatic cells, it may be replied, "Just so, but there is very obvious evidence that the germ cells, or at any rate the reproductive organs, can affect most profoundly the development of the somatic cells." I refer, of course, to the well-known but most remarkable effects of castration. If the somatic cells were absolutely independent of the germ cells, I fail to see why the antlers should not develop normally in a castrated stag or why the larynx should remain in the puerile condition in a castrated man.

With regard to alcohol, I could scarcely venture to discuss the evidence in detail, but Dr. Reid's arguments do not seem to me convincing. The idea of alcohol causing extinction by injuring the germs seems to me again beside the question. The almost universal use of alcohol in the majority of human races proves that in moderation it does not necessarily produce evil effects. The *excessive* consumption of alcohol is known to produce neurotic degeneration in the individual. My own conclusion is that excessive indulgence in any person necessarily causes an inordinate appetite or craving for alcohol, and that this craving, with the neurosis underlying it, is often strongly inherited. To my mind the neurosis is an acquired character and the inheritance beyond doubt. I know of instances from my own observation. When the craving is indulged the nervous degeneration becomes greater in successive generations, resulting in insanity, paralysis, idiocy, or cerebral defect of some kind. Dr. Archdall Reid, if he wishes to convince his opponents, should prove that the children of habitual drunkards are normally developed both mentally and physically.

Another consideration of great importance which is generally overlooked is the following. Intemperate habits are

very often acquired, or developed, rather late in life, after the victims of them have produced all their children. The children cannot in such cases inherit any of the effects of such habits on the constitution. It is the general experience of breeders of animals that the offspring inherit characters more strongly when the parents are more mature, that is to say, characters which continue to develop until an advanced period of life, e.g., the peculiarities of the carrier pigeon. The mental powers in man are an example of the same kind. They continue to develop long after the time at which most men beget their children, and there is some reason to believe that younger sons generally inherit more brain-power as well as less property. There is also some reason to believe that children produced of aged parents are, in a sense, born old. Such facts, if they are facts, cannot be explained on the assumption that the germ-cells are independent of the history of the soma, and in investigating the inheritance of degeneration due to alcoholism the duration of the alcoholism in the parents *before* the generation of the children must be ascertained. I am, Sirs, yours faithfully,

June 21st, 1901. J. T. CUNNINGHAM.

To the Editors of THE LANCET.

SIRS,—To judge by Dr. Andrew Wilson's letter in THE LANCET of June 29th, p. 1861, I do not seem to have made my position as "clear" as he asserts. I am sure I do not know whether "the germ-plasm is utterly independent of the body-plasm," or "whether the great divergence between germ and soma contended for by Galton (?) and Weismann is a reality." I know absolutely nothing about all that, and, notwithstanding the vast flood of mystical chatter indulged in by various eminent biologists, I am equally sure that nobody else knows more. But I do positively know (1) that a child (for instance) is derived from a single cell of each parent and (2) that the soma (i.e., the other cells) of each man acquires millions of traits. It seems to me incredible that each of these millions of acquirements can so affect the germ that every particular acquirement tends to be reproduced by the child. In other words, the assumption that the offspring of the germ cell tend to reproduce the acquirements of the other cells seems to me as improbable as the assumption that the offspring of Brown tend to reproduce the acquirements of Jones and Robinson. I know, moreover, that for 20 years search has been made for indubitable instances of transmission without success. When, therefore, the transmission is alleged I ask for proof. Dr. Wilson, in reply, refers me to the works of Darwin, Herbert Spencer, Eimer, and others—to this gentleman and that. He adopts an impossible method of controversy. I cannot review the works of Spencer, for instance, in the correspondence columns of THE LANCET. I am prepared, however, to make Dr. Wilson a reasonable offer. Let him describe (giving the necessary details) any instance of transmission alleged by the gentlemen he has named and I will undertake to demonstrate the fallacy. Indeed, so strong do I feel my position to be that I willingly grant him the whole literature of the subject to delve in.

The last sentence of his letter is characteristic. In effect he asserts that nobody has proved that acquired traits are *not* transmitted. I quite agree, and I may add that nobody will ever prove it, but only because no one can prove a negative. Suppose, for instance, I stated that at three minutes past midnight on Nov. 10th, 1900, a dragon sat and curled his whiskers on the cross of St. Paul's could anyone disprove the assertion? Could Dr. Wilson? Certainly not. He would merely say that my assertion was incredible and ask *me* for evidence. I ask him for evidence. The onus of proof rests with him.—I am, Sirs, yours faithfully,

Southsea, July 1st, 1901. G. ARCHDALL REID.

"PUERPERAL FEVER TREATED WITH ANTI-STREPTOCOCCIC SERUM."

To the Editors of THE LANCET.

SIRS,—In THE LANCET of June 29th, p. 1824, I read notes of a case which appears under the heading: "A Case of Puerperal Fever treated with Anti-streptococcic Serum; Death." I think this heading is distinctly misleading. From May 1st the patient is passing through an intensely septic process with repeated rigors, delirium, incontinence of urine (which was albuminous), and thrombosis of both legs and left arm. The patient's condition became so critical that strychnine and brandy were necessary on May 18th. *Then*, on May 19th, anti-streptococcic serum was used for the first time. I think that it would have been wise to have stated that the serum was first employed on the nineteenth day after the manifestation of septicæmia. Moreover, one would like to know whether: (1) the case had been proved to be one of pure streptococcic infection by bacteriological and microscopical examination; and (2) what was the nature of the nurse's infection? My personal experience of anti-streptococcic serum is that if it be used early and in sufficient dosage in suitable cases—i.e., in cases proved to be of streptococcic origin—it is as valuable a therapeutic agent as anti-diphtheritic serum.

I am, Sirs, yours faithfully,

Bedford, June 30th, 1901. S. J. ROSS.

ALFRED HUGHES MEMORIAL AT KING'S COLLEGE, LONDON.

To the Editors of THE LANCET.

SIRS,—A movement has been set on foot to establish a memorial to the late Professor Hughes at King's College. It has been felt that his memory should be perpetuated in London as well as in Wales, for the last years of his life were spent with characteristic energy among London students. His anatomical collection has, in accordance with his expressed wish, been presented to King's College by Mrs. Hughes and will bear his name. It is hoped that the fund now being collected will enable us to erect a memorial tablet in the anatomical museum or college chapel and also to found a scholarship or medal in anatomy to be awarded annually and to be named after our late colleague. With this object in view a large number of circulars have been posted to members of the medical profession, prominent anatomists, and others. Already a considerable number of subscriptions have been sent in. These include £5 from Lord Lister, £5 from the Hon. W. F. D. Smith, M.P. (treasurer of King's College), £2,2*s.* from the Archbishop of York, and a number of others, principally from members of the Council, the staff, and the students of King's College. The object of this letter is to make the fund still more widely known. There are doubtless many of Professor Hughes's friends and old students whom it is difficult to reach in other ways who would like to show their appreciation of his worth by sending donations to the fund. A full list of subscribers will be published later. Contributions should be sent to me.

I am, Sirs, yours faithfully,

W. D. HALLIBURTON.

King's College, Strand, June 30th, 1901.

THE TREATMENT OF DYSENTERY AT SPA BY CHALYBEATE WATERS, &c.

To the Editors of THE LANCET.

SIRS,—I think the following case of sufficient importance at the present juncture to warrant publication. Captain ——, aged 27 years, good antecedents, consulted me at Spa on June 9th, having been invalided home from the Cape after dysentery. He had a relapse on the way home, and when first seen was passing from eight to ten bloody stools per diem, with inability to leave his hotel without previously taking 10 drops of chlorodyne, &c. I put him on a course of our iron water and douches and an internal antiseptic treatment. The result has been most satisfactory. In 16 days he has put on eight pounds weight and is now, since eight days, passing formed stools without blood and has ceased using chlorodyne. I am, Sirs, yours faithfully,

Dr. A. CAFFERATA.

Avenue du Marteau, Spa, June 28th, 1901.

EQUINE VARIOLA—HORSE POX.

To the Editors of THE LANCET.

SIRS,—During the last few weeks I have had five or six cases of the above disease in the human being accidentally inoculated from the horse, but as I do not remember ever seeing any note of similar cases I thought it might be of interest to record it. The subjects have all been stable lads employed at racing stables, and the disease has generally been inoculated into the hand or arm while drenching or balling a horse. In one case, however, the upper eyelid was the seat of inoculation. The phenomena have been far more acute and of shorter duration than in vaccinia.

I am informed that several years ago a number of cases

were seen here in which the symptoms were so acute that the disease was at first diagnosed as anthrax.

I am, Sirs, yours faithfully,

Newmarket, July 2nd, 1901. ERNEST CROMPTON, M.R.C.S.

"SIMULATION OF BERI-BERI."

To the Editors of THE LANCET.

SIRS,—*Apropos* of your annotation on simulation of beri-beri in THE LANCET of May 25th, p. 1483, this method of producing an œdema of the feet is well known to Indian prisoners. I remember such an "outbreak" some years ago when it was found that the œdema was produced by a needle-and-thread soaked in lime.—I am, Sirs, yours faithfully,

Bengal, June 9th, 1901. W. J. B.

THE DIFFERENCE BETWEEN THE GENERAL MEDICAL COUNCIL AND THE CONJOINT BOARD.

To the Editors of THE LANCET.

SIRS,—Having been forced to take great interest in the preliminary scientific education of medical students during the last two years my experiences and conclusions may interest your readers.

First, the experiences. In the autumn of 1899 I applied at the offices of the General Medical Council for information as to where the first year of studentship might be passed, and was given the list of schools recognised by the Conjoint Board as being a reliable guide. In January, 1900, my eldest son, who had entered at one of these schools, was told when he applied to register that the list of the Conjoint Board was no longer recognised by the Council and that his case must be considered specially. Eventually, after a period of suspense, his time was recognised. In July, 1900, I wrote to the Registrar of the General Medical Council for a list of the schools recognised as another son had matriculated and I did not wish to send him to lodgings in London when he was barely 17. The Registrar wrote: "The question of the approval of these institutions is still under consideration, each case is meanwhile considered on its merits." The question remained under consideration for the whole of 1900, no doubt to the great inconvenience of many others besides myself and my son. I fixed on a public school recognised by the Conjoint Board which had four boys in its "science sixth," who had passed the Preliminary Scientific, London, and others preparing for it, and I inquired of the Registrar whether my second son's time would be recognised if it was spent there. His answer was to the effect that the Council objected to that class of school, but at the same time he recommended a university college in the same town at which my son would have none of the great advantages of school life—e.g., games, supervision, &c. Eventually I had to enter him at a London hospital (paying £50) to enable him to register, and send him to an unrecognised school besides, as I wanted him to pass the Preliminary Scientific without unnecessary delay. If you inquire of students you will be astonished to find how many of the London hospitals cannot be relied upon to pass their candidates for that examination. Some are safe on the zoological side but cannot teach students the necessary chemistry and physics; with others it is the opposite; and probably there are some that can teach both, but the unrecognised school does best.

My conclusions are that the General Medical Council has not given due consideration to the convenience of medical students and their guardians. Full notice of these alterations should have been made public and sent to the schools concerned. (Two of the schools learned the news from me nine months after their tacit recognition by the Council had ceased.) The year and a half of suspense has probably been a great inconvenience to many and there should be strong grounds to excuse it. The final decision is likely to be very detrimental to students in future. Firstly, by preventing the youth of 16 or 17 years of age who is anxious to press forward in the medical profession from spending the usual final year at school where he learns much that is good for him as monitor, leader in games, and such like, to say nothing of the great physical advantages which school has over life in London lodgings. These deprivations I regard as positively cruel towards the student and injurious to our profession, which depends on the good qualities of its members for the position which it holds. If the rising generation of medical practitioners be forced into cheap lodgings in big cities at an early age we may safely foretell retrogression. Secondly, in many cases the youth will have to forego a good system of education for an inferior one.

The Conjoint Board may have been too free with its recognitions, but certainly the Council has not been free enough. Surely all schools which can pass students for the Preliminary Scientific, London, regularly might be recognised by the Council, or, better still, students who pass the preliminary scientific or first professional examination of any licensing body might be accredited with having done the period of studentship allotted to preparation for it by medical schools. Why should a system of protection through registration be afforded to the recognised medical schools and a few others when their education in elementary science is not always the best. There is a general opinion that the great argument in favour of the five years' curriculum was that medical students had not enough practical work in their courses and that part of the fifth year at least was to be devoted to assisting physicians, surgeons, or general practitioners in hospital or outside. Now that it is instituted we find students forced to spend at least a year at preliminary subjects and the same old want of real experience facing the newly-fledged licentiate though he has spent more time and more money in getting qualified than his father did (for all the hospitals have raised their fees). May the memory that, unlike his father, he spent much time and energy in hunting for the ovaries of earth-worms and the lymphatic hearts of frogs console him in his trouble over failure to put his first good private patient on a satisfactory diet. Is this elaborate training in elementary science really advisable? It is possible to give students too much of a good thing. I am, Sirs, yours faithfully,

June 28th, 1901. MEDICUS ET PATER.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Birmingham and Midland Counties Branch of the British Medical Association.

THE annual meeting of the Birmingham and Midland Counties Branch of the British Medical Association was held on June 13th at the Medical Institute. The report of the council stated that the last year had been one of exceptional interest and activity. In addition to the ordinary meetings two special meetings of the branch had been held, and the attendance had reached the high average of 65 per meeting, the extremes being 38 and 109. There had also been six special council meetings. One of the special branch meetings and the greater part of one ordinary meeting were devoted to a discussion on the Coventry Provident Dispensary, and a resolution was passed expressing the opinion that no professional recognition should be given to the medical staff of that institution by members of the branch. Forty new members had been elected during the session, and the present membership of the branch was 443. The report of the pathological and clinical section, and the report of the ethical committee were received, both of which evinced signs of much valuable work during the session. The financial report showed a balance of £23 4*s*. Various votes of thanks were passed. Dr. Malins was elected president and Mr. J. T. J. Morrison and Dr. T. Stacey Wilson were elected honorary secretaries. The members, with a distinguished representation of the City Council, the University, and friends, dined together subsequently, the proceedings being characterised by enthusiasm and good feeling throughout.

The University of Birmingham.

The different faculties have had a busy time recently in conducting examinations for degrees of the new University. The medical faculty has been exceptionally occupied by the large number of candidates. Forty-one qualified medical men availed themselves of the opportunity of taking the final examination for the degrees of M.B. and Ch.B., having been past students of the school. Some 27 of these were successful. The first degree congregation of the University is to be held in the Town Hall on July 6th when the Chancellor of the University, the Right Hon. Joseph Chamberlain, will confer degrees upon the

candidates for graduation. The council of the University has confirmed a recommendation of the Senate: "That at the forthcoming degree congregation every member of the Senate be admitted to a Master's degree, professors in the faculties of arts to receive the M.A. degree, and professors in the faculties of science and medicine the M.Sc. degree." The appropriate academicals being worn by the staff of the University and by the candidates an imposing array will be presented at the ceremony which is expected to be largely attended. An important letter from the Chancellor of the University was presented to the City Council on June 18th, in which Mr. Chamberlain recited the value of the University and the necessity of spending large sums on buildings, machinery, and equipment. He alluded to the liberality of many contributors and munificent gifts from strangers which had resulted in a subscription list of more than £400,000, and then made an appeal to the authorities of the city in the first place and also to those of the neighbouring counties to make a grant in aid of maintenance from the funds which the legislature has placed at their disposal or which they are authorised to raise by rates. Precedents are given from other towns. It is shown that a rate of a halfpenny in the pound would provide an annual contribution of £5000, which would justify the council in proceeding immediately with the new departments. The council of the city is already represented by five of its members upon the governing body of the University—a sufficient guarantee of the disposal of such contributions. The proposal was referred by the City Council without discussion to the General Purposes Committee with instructions to report.

The Housing Question.

At a meeting of the City Council held on June 18th a recommendation of the Health Committee was brought forward with regard to a plan to build 621 workmen's dwellings upon land purchased for that purpose last year at Bordesley Green. An amendment was carried by two votes, after considerable and lengthened discussion, that the scheme should be referred to a special Housing Committee to be appointed in November next. The chairman of the Health Committee therefore withdrew the motion. A motion to instruct the General Purposes Committee to hold an investigation as to any lack of efficiency in the sanitary administration of the city in recent years was also rejected. Much attention is being given by various ladies to the question of the hour in this direction. Ministers of religion preached special "slum" sermons on June 30th, and endeavours are being made to excite public interest in so important a matter.

Illness of Mr. Jordan Lloyd.

I regret to announce the illness of Mr. Jordan Lloyd which occurred somewhat suddenly and culminated in an operation for appendicitis on June 27th. This was performed by his colleague, Mr. Bennett May, and I am glad to hear that the patient is progressing satisfactorily. Mr. Jordan Lloyd's many friends will join in congratulations and hope for his speedy recovery.

Hospital Saturday Fund.

The amount paid into the bank this year, so far, amounts to £14,499 odd; last year it was £13,681. The committee hope that there will be a great many more subscribers to the fund this year.

July 2nd.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Watered Butter: Special Machinery.

CASES are not infrequently brought forward where butter has been watered, and strong opinions have been expressed *pro* and *con*. The dealers say that a certain percentage of water is necessary, but no doubt this is often fraudulently exceeded. On June 20th the proprietor of some creameries in Devonshire was fined £5 and costs at the City Police-court, Manchester, for giving a false warranty as to butter sold to a Manchester dealer. In this case the defendant pleaded guilty, and his solicitor was instructed to say that during a great rush of business the workpeople had probably been careless, and that during the last three years between 200 and 300 analyses had been made without any adulteration being found. This may, perhaps, be a feasible excuse. Such a plea, however, would not apply to a case heard at Ashton on June 26th, when a retail dealer was fined £10 and special costs amounting to £3 11*s*. In this case Mr. Williams, the county analyst, said that the butter contained over 23 per cent. of water, "the largest quantity, with one exception, that he had ever found in the county of Lancashire." He added also that "the water had been intentionally and fraudulently put in the butter. Special machines were sold for this purpose and in this case the butter had been warranted from the dairy in Somersetshire to the retailer." The report, which ends with the quaint remark—"much interest was evinced in the case"—does not make it clear whether the manufacturer or the retailer had exercised this misapplied ingenuity. But if "special machines are sold for this purpose," the practice of forcing an excess of water into the butter must be a common one.

Manchester Royal Infirmary.

On June 24th a recommendation from the appointments committee of the infirmary that Mr. J. V. Stock be appointed resident medical officer for one year at a salary of £150 was confirmed by the Manchester Infirmary Board. The Chairman, Sir Forbes Adam, also announced the election of Mr. J. W. Smith to the office of honorary assistant surgeon to fill the vacancy caused by the appointment of Mr. Joseph Collier as an honorary surgeon.

Review of the Lancashire St. John Ambulance Corps.

The St. John Ambulance movement may be taken as well established in Manchester, for the eleventh annual review and demonstration of the North-east Lancashire corps of the brigade was held on the Manchester Athletic Club ground on June 22nd. There was a good muster from the various towns in the division and a large attendance of spectators. The weather, unfortunately, interfered a good deal with the proceedings, but the principal competitions were successfully gone through. The Manchester corps retained the Molloy cup won by them last year, Preston and Blackpool coming second and third. The nursing division wore the regulation uniform of black dresses with white aprons and caps, and took part in the march-past and bandaging exhibitions. The inspecting officer was Colonel C. W. B. Bowdler (commissioner), and there were also present Lieutenant-Colonel C. J. Trimble (deputy commissioner, No. 4 District) and Mr. J. C. Derham (assistant commissioner, No. 4 District), the last of whom was in command. In his address to the brigade the inspecting officer expressed satisfaction at the manner in which the ambulance drill had been done and said that 806 men had gone from that division to serve in South Africa and that "letters from the front spoke in high terms of the splendid work they had been able to do there." This showed the excellence of the training received at home.

Preservatives in Milk.

A case in which a milk-dealer of Gorton had been summoned the previous week "for selling milk not of the nature, substance, and quality of the article demanded," was brought up again for judgment before Mr. Yates, K.C., the stipendiary magistrate at the Manchester City Police-court, on June 25th. It was of some importance, being taken as a test case. The analysis by Mr. Williams of some of the milk in question showed that formalin had been added to the milk. For the defence it was contended that it was added as a preservative and was necessary for its carriage, also that the analyst's certificate was insufficient as it was only qualitative. The magistrate was of opinion that formalin was so volatile that the quantity in the milk could not be accurately ascertained, but if wrong in this opinion he was satisfied from Mr. Williams's evidence that there was at least one part in 50,000 of the milk. He thought that it was impossible to contend that (unless very carefully used by an experienced person) it was not injurious to health. It was very pungent, and had to be carefully handled to avoid injury to the hands, and it was admitted that if used in too large quantities it retarded digestion. He was glad to be able to arrive at this conclusion, as he thought it would be a very dangerous thing if an unskilled milk-dealer were allowed to mix an ingredient like formalin with a food so universally used as milk. He found that this milk was not of the nature, substance, and quality demanded, and that formalin was not necessary for its preservation during carriage. As it was a test case 40*s*. only and costs were imposed, and five guineas for extra costs.

Pollution of the Ship Canal.

At a meeting of the Mersey and Irwell Joint Committees

held in Manchester on July 1st the corporations of Manchester and Salford came in for some strictures, especially the former. The Medlock is in a much worse condition at Knott Mill than when it enters the city, principally from trade waste, brewery waste, and from the storm overflows of the corporation sewers. According to the report of the chief inspector (Mr. R. A. Tatton) these are very unsatisfactory and are often found to be working not only when there is no storm, but in the driest weather. Mr. Tatton's reports on the progress of their sewage works are to be sent to each corporation and attention is to be drawn "to the rise year by year in the amount of organic impurity in the effluent." The chairman to the Consulting Sub-Committee said that the fact that the Manchester effluents had steadily grown worse might be accounted for by the effluents from a number of manufactories in the city being received by the sewers and possibly because there was an enormous decrease in the amount of the chemicals used. He thought that the Manchester Corporation should be told that as they had been so leniently treated they should do all they could to improve their tank effluent pending the completion of the bacteria beds. Another member said that they had tried the polite method for many years and he thought that it had lost its power. Both corporations were remarkably active in undertakings where they could see their way to a profit. He contrasted the expedition with which the Manchester Corporation tramways had been got to work with the method of dealing with the Ship Canal nuisance. One of the Manchester members said that the Rivers Committee of the corporation was doing "everything within the limits of human power," &c. It cannot be pleasant for the corporation to read such statements as are repeatedly made at the meetings of the Joint Committee, but the condition of the canal is bad enough to justify very strong language. As far down as Flixton, Lymm, and even Latchford its foulness seems to be no less than it was several years ago. The nuisance is so sickening and the stink is so unspeakably abominable that mere motives of humanity should urge the corporation to efforts a little greater than those considered by Mr. Brocklehurst to have reached the limits of human power, and no doubt this could be done.

Sandlebridge Colony for Epileptics.

In addition to the provision for epileptics made by the joint committee of the boards of guardians of Manchester and Chorlton private benevolence is engaged on an important undertaking at Sandlebridge, near Alderley. About 130 acres of the Sandlebridge estate have been set aside and are being laid out as a colony for the treatment of epileptic patients. There will be accommodation at the outset for 200 patients. It is probable, however, that extensions will have to be made before long, as already the applications for admission from various parts of the country and from Ireland exceed that number. The sexes will be separated, there will be playgrounds and a school for children, and workshops and laundry for adults. The grounds have been planted with fruit trees and shrubs at a cost of some thousands of pounds. A few patients are to be received free, but payment will be made for the inmates generally according to the means of their friends. This scheme has arisen out of the visits paid by Dr. J. M. Rhodes of the Chorlton Union and Alderman McDougall of the Manchester Board of Guardians to various institutions for the treatment of epileptics in Germany, France, and Belgium as a deputation from the Joint Asylums Committee. As a result of their reports and recommendations an influential committee was appointed to carry out a scheme for a colony and public subscriptions to the amount of between £7000 and £8000 were raised. Mr. B. W. Levy, the legatee of the late David Lewis, whose benefactions to Liverpool and Manchester deserve the gratitude of the community, was then appealed to. After investigation this gentleman decided to purchase the Sandlebridge estate of over 500 acres out of the Lewis Trust, and to provide the buildings and equipment at a cost of something like £120,000. But this most generous gift will not be sufficient for all purposes, and the committee has to raise from the public an endowment fund of at least £20,000, in addition to a certain sum in annual subscriptions. This is an admirable opportunity for the benevolent rich. It is expected that the colony will be ready for patients in about two years. At the last meeting of the Manchester Board of Guardians Alderman McDougall corrected an idea that had got abroad that the guardians would be able to send the epileptics from the workhouse to the Sandlebridge Hospital, which was never intended, as he delicately puts it, "for the guardians' patients."

July 2nd.

WALES AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Ratepayers' Associations.

THE avowed purpose of the ratepayers' associations which in recent years have been established in many towns is to keep down the rates in the particular districts concerned and they are thus in a sense antagonistic to sanitary reforms for which some expenditure is usually required. An exception is to be found at Dinas Powis, a village in the Llandaff rural district which adjoins, and is almost a suburb of, the town of Barry. The necessity for taking some action to improve the sanitary condition of the village was discussed at the last meeting of the sanitary committee of the Glamorgan County Council and a report has now been issued by the local ratepayers' association stating in considerable detail the actual conditions which are to be found. This report can hardly be pleasant reading to the district council, the members of which must feel that they have neglected the duty cast upon them by the Public Health Act, 1875, to inform themselves of the existence of any conditions which are inimical to the health of the inhabitants of their district. Information is given in the report of the association with regard to 277 of the 310 houses in the village. As there is no sewer a brook takes the overflow from 129 cesspools. In many other houses there are privy middens which are seldom emptied and in several instances the contents of cesspools and privies have to be carried through the living rooms of the houses to which they are attached. In his last annual report the medical officer of health drew the attention of the council to the condition of the village and pointed out the manner in which reforms could be effected.

Bristol Cottage Homes.

The Bristol Board of Guardians have 200 children living in 16 scattered homes and are proposing to establish at Downend a colony of cottage homes for the accommodation of 204 children. The scheme, for which plans were approved on June 28th, provides for the erection of 14 semi-detached houses each to accommodate 12 children, a convalescent home for 36 children, a large hall, and a lodge. Nine local architects had been invited to submit competitive designs and their estimates for carrying out the works indicated above varied from £14,165 to £23,380. The guardians decided to carry out the plans of the architect whose estimate was the lowest.

Bristol Hospital for Sick Children and Women.

The four days' bazaar which was recently held in Bristol for the purpose of raising funds for the Hospital for Sick Children and Women realised the sum of £3085.

Drainage of the Monmouthshire Valleys.

In THE LANCET of Feb. 2nd, 1901, p. 362, reference was made to the provision of drainage for the western valleys of Monmouthshire. The report of the engineers appointed by the urban district councils of Ebbw Vale, Nantyglo, Abertillery, Abercarn, and Risca, and by the rural district council of St. Mellons has now been presented. The aggregate population of these six districts is 93,540, showing an increase of 20,589 during the last decade. There are still many portions of the valleys unopened, and as they are also comparatively near the sea-board and are well served with railways there is every likelihood of a considerable increase in the population in the future. The engineers were practically called upon to decide whether it would be more economical for the drainage of each district to be dealt with separately, either by irrigation or upon the bacterial system, or whether there should be constructed a joint sewer to serve the combined districts, discharging the sewage without treatment into the Bristol Channel. The initial cost of separate schemes is estimated at £254,000, to which sum would have to be added the expense of pumping, amounting if capitalised to £200,000. The cost of a combined sewer is estimated at £170,000, and although there would still be an expenditure for inspection and general upkeep this would amount at the outside to less than £500 yearly. The only main sewer upon similar lines in Wales or Monmouthshire is that

which was constructed between the years 1889 and 1892 for the Rhondda valleys and Pontypridd. This sewer, which cost £170,000, is 17½ miles long and discharges into the Bristol Channel about four miles above Cardiff, taking the sewage from a population of 145,000 persons. Leading into this main outfall are two subsidiary sewers along each of the Rhondda valleys, one of which is 10 miles and the other seven miles long, and which cost in construction about £60,000. The advocates of the privy-midden system so prevalent in the north of England are constantly declaring that, however suitable water-carriage may be for residential districts, it cannot be adapted to the houses of the working classes. This is quite contrary to the experience of those Welsh colliery districts, such as Rhondda and Pontypridd, where water-carriage is completely adopted and where the blocking of drains from improper usage is not by any means a common occurrence.

Abergavenny Cottage Hospital.

On June 28th the Marquis of Abergavenny formally laid the foundation-stone of the new cottage hospital and dispensary at Abergavenny. The building is to be erected on a site of land given by the corporation of the town.

Handel Cossham Memorial Hospital.

This new hospital, which is now being erected at Kingswood, will provide accommodation for about 50 patients. Mr. Cossham bequeathed nearly £100,000 for the structure, which sum will be available for the building and its endowment. The site comprises about four acres of land and is on one of the highest points in the neighbourhood, being nearly 370 feet above sea level.

July 1st.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Sanitary Inspectors' Association.

THE annual congress of this association was held in Glasgow on June 28th. A welcome to the delegates was offered by the Lord Provost who in the course of a short address reviewed some of the features of the recent epidemic outbreaks in the city. He paid a high compliment to the medical and sanitary departments for the energetic and efficient manner in which they had met the difficulties created by the invasion first of plague and later of small-pox. Drastic measures had no doubt been required to overcome the latter epidemic, but these had now proved successful and the city was nearly free from its presence. In connexion with these matters the Lord Provost announced his firm belief in vaccination and stated that his faith in it had been strengthened by what he had seen during the recent visitation. At the same time he urged the immense importance of sanitary precautions and sanitary conditions. Vaccination even if adopted universally in the city would be no excuse for failure to apply, or if necessary to increase, the compulsory powers of the health authorities. Recent experience had shown that it was in those areas of the city where the sanitary conditions were at their worst that small-pox obtained a position which it was very difficult to attack with success, and that on the contrary personal and domestic cleanliness, though not an absolute protection to the individual, meant the establishment of conditions antagonistic to the invasion and spread of the disease. Thus the general work of the sanitary inspector became a matter of first importance in relation both to the well-being of the individual citizen and to the protection of the whole community. His lordship was cordially thanked for the welcome which he had extended on behalf of the corporation and for the address which he had delivered to the delegates. In the course of the proceedings several references were made to the recent outbreak of small-pox in the city and the generally expressed opinion was that the management of this, considering all the difficulties of the position, had been decidedly successful. In the President's address figures were quoted to show that the death-rate of Scotland had decreased in each decade since 1861. The figures in the four decades terminating in 1870, 1880, 1890, 1900, were respectively 22·05, 21·63, 19·20, 18·74 average annual deaths per 1000, this being a reduction in the death-rate of 3·31 per 1000. Taking the eight large towns the death-rate had fallen from 28·2 per 1000 in the first decade to 20·9 per 1000 in the last, a reduction of 7·3. In connexion with the Compulsory Notification Act it was shown that about 50 per cent. of the notified cases of scarlet fever were treated in their own homes and that this was an influence tending to the extension and persistence of the disease. The hospital treatment of each case cost the community about £10. If compulsory removal to hospital were insisted on the number of cases would be rapidly diminished and very soon the expense to the community would be reduced. Another question which occupied the attention of the congress was the proposal to establish a port sanitary authority for the Clyde. Baillie King, in a paper on this subject, stated that they had every reason to believe that both bubonic plague and small-pox had passed into the city through the port. Though the corporation possessed the necessary powers under the Act of 1899 they had not yet constituted a port sanitary authority. This was due partly to the difficulty of securing the cooperation of other local authorities on the banks of the Clyde, but they expected shortly to overcome this and other difficulties. They had under consideration a scheme by which a complete defence would be set up for the purpose not only of preventing the entrance to the city by the river of persons suspected to be the subjects of infectious disease, but also of detaining dirty and insanitary ships until they were properly cleansed and disinfected. For some years they had employed a special inspector to devote his attention to seamen's and emigrants' boarding-houses with good results, and it only needed the establishment of a health authority for the port to render their sanitary armament complete. After some discussion a resolution embodying this view was passed unanimously and it was decided to send copies of this to the Secretary for Scotland and the Local Government Board. Other subjects considered by the congress included the ventilation of houses, the standard for milk, &c.

Reconstruction of the Glasgow Royal Infirmary.

The unfortunate controversy regarding the rebuilding scheme is not apparently to be allowed to terminate. The Glasgow Institute of Architects is not satisfied with the explanation published on behalf of the executive committee and has sent to the press a further statement of objections. In this it is contended that the plans as adopted are in many vital particulars inadequate and out of date and that the arrangement of the buildings, more particularly of the block facing Cathedral-square, is bad. This block from its height, it is repeated, will shut out the sun and air from the rest of the buildings and will dominate and destroy the effect of the cathedral. The institute further criticises the manner in which the committee proceeded in the selection of the plan of reconstruction and urges that some of the rejected designs were free from the defects of the one adopted. Of course, all this must act prejudicially on the subscription lists, of which, indeed, little has been recently heard. And apart from other disadvantages delay has meant the appearance of appeals for funds from the University, the Technical College, and the Western Infirmary, all of which have schemes concerning which controversy is silent. In any case these must necessarily be serious competitors for public favour, but under the present circumstances it will not be surprising if the Royal Infirmary fails to obtain its due measure of practical support.

Hospital Saturday in Aberdeen.

June 29th was Hospital Saturday in Aberdeen. There was a monster procession of cyclists, members of friendly societies, the fire brigade, horses, machines, &c., through some of the principal streets to Duthie Park, where a military display and sports took place. There was a large attendance of the public. On the evening of June 28th there were also cavalry sports in the park, a detachment of the Scots Greys and the band of the Black Watch being present. The weather was fine on both occasions. The financial results are not yet known.

Sanitation at Fishers' Squares, Aberdeen.

The Aberdeen Town Council has called on the owners of properties at the Fishers' Squares, Footdee, in that city, to place all cellars or outhouses on an appropriate area, to introduce water and to fit up sinks in the dwelling-houses, and to provide for each a sufficient water-closet. In cases of default the town council will execute the works at the cost of the proprietors concerned.

July 2nd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Irish University Commission.

AT the annual meeting of the Royal University Graduates' Association held in Belfast on June 29th the following resolution was unanimously passed :—

That this annual general meeting of the Royal University Graduates' Association most emphatically condemns the constitution of the Irish University Commission on the following grounds: first, that the Government have departed from the principle of appointing only such persons as are entirely unprejudiced on this important question and have included the names of several who have pronounced strongly-biased views on one side; second, that the faculties are not represented thereon in proportion to their importance; and third, that there are on the commission certain members whose acts will form part of the subjects of inquiry and report.

At a meeting of the Higher Education Committee of the General Assembly of the Presbyterian Church in Ireland, held in Belfast on June 28th, resolutions were unanimously adopted opposing the establishment and endowment of any denominational university or college and protesting in the strongest manner against the exclusion of Trinity College, Dublin, from the scope of the Royal Commission, as no settlement of the education question could be regarded as final or satisfactory which did not include Dublin University and Trinity College, Dublin. Previously to the appointment of the commission the Presbyterian Church expressed to the Government the earnest hope "that the constitution of the commission shall be such as to be a guarantee to the public that the great object aimed at shall be the advancement of education and not the promotion of any merely sectional or denominational interests." The Education Committee of the Presbyterian Church protest that as a large proportion of the members of the commission are known to be in favour of one policy (denominational education), while no recognised opponent of such a policy has found a place on the commission, any report the commission may make is discredited beforehand as likely to be partisan and one-sided.

Outbreak of Typhoid Fever in Belfast.

The medical officer of health reported to the Belfast City Council on July 1st at their monthly meeting that "there can be no doubt but that there is at present a serious outbreak of this [typhoid] disease." Between May 19th and June 15th, 1901, there were 247 cases of typhoid fever notified, as compared with 129 in the preceding month and 177 in the corresponding four weeks of last year. The outbreak first occurred in the Woodvale district which is a part situated in the higher portion of the city. It has since spread into the adjacent districts and at present is prevalent in all parts of the city. The only crumb of comfort is that whilst the number of cases has almost doubled, yet the deaths therefrom were 22 for the last four weeks, while in the preceding month they were 19; they were 29 in the corresponding month of last year. Dr. J. Fulton, dispensary medical officer of the district in which the outbreak occurred, attributed the majority of the cases to the dry weather in the month of May which had caused an accumulation of sewage in the sewers. A very animated discussion followed the presentation of the public health report in the City Council. The vice-chairman of the Public Health Committee (Dr. J. King Kerr) said that when on June 13th it was reported that 71 cases of typhoid fever had been notified during the week they had ordered their sanitary officer and medical superintendent, and with them Dr. Fulton and Dr. A. G. Robb, to supply them with a thorough and impartial report as to the cause of the outbreak and that their report was a very serious indictment of the state of affairs arising from matters connected with another public board in the city. It was, he said, a strong indictment of the Stoneyford catchment area, and they would present it when they had the fullest details. They had found no cause either in regard to sewers, houses, dams, or milk-supply for the outbreak of typhoid fever. Failing all these as causes they looked to the water-supply and they believed that the water-supply from Stoneyford catchment area was a menace to the health of the city. Councillor J. D. Williamson, M.D. R.U.I., took an entirely opposite view and said that it was not fair to the water commissioners to continuously trot out the water as the cause of typhoid fever. He asked, had the sculleries and the subsoil of the houses where the disease occurred been examined? How many samples of milk had been bacteriologically examined? He called attention to the "tippings" that were taking place all over the city, and on these places where the dirt was being cast houses would presently be erected without any regard whatever to the nature of the soil on which they were erected. He advised the water commissioners not to lay pipes through these impure soils as crackings of pipes might let impurities into the water. Alderman P. O'Connell, M.D. R.U.I., and Councillor A. V. Browne, L.R.C.P., L.R.C.S. Edin., also blamed the polluted subsoil. There can be no question that this continued friction between two public bodies like the corporation and the water commissioners of Belfast as to the cause of repeated outbreaks of typhoid fever in that city is a great mistake, and as a result nothing whatever is being accomplished to prevent the occurrence of the disease. The only solution is to get a skilled expert—a public health officer of experience from England—to come over and to investigate the whole question and to let the citizens know the truth and see on whose shoulders the blame for these annual epidemics rests.

July 1st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Assistance Publique.

M. RANSON has just laid before the Municipal Council a report upon the work of the Assistance Publique in Paris. The report is a lively criticism of different abuses. First of all with regard to the nurses the report states that at the Lariboisière Hospital the principal nurses who are in charge begin their day at 5.30 A.M. and do not go off duty until 6 P.M., while five of their number keep on duty until 8 P.M., making a total day of 14½ hours which is broken only by 80 minutes which are allowed for three meals. About every seven weeks these nurses go on fatigue duty from 8 P.M. until 11 P.M.—that is to say, three hours' more work, making a total day's work of 17½ hours. If we consider that these unfortunate women must have half an hour to go to bed and as much time in the morning to dress and to perform certain indispensable toilet arrangements it can easily be seen that they have not more than five hours' sleep. It is very difficult for a young woman on whose shoulders are laid very delicate duties, for the right performance of which it is necessary that she must have all her wits about her, to avoid occasional failure in the presence of so much work. M. Ranson finally called the attention of the council to another point. He stated that three kilometres of string which had been ordered at a cost of 5 francs 85 centimes had taken six weeks to be delivered. An order form took 92 days to get from the Salpêtrière to the central depôt, although these two establishments are absolutely next door to one another. A patient who had been operated upon and for whom the surgeon had signed his ticket of dismissal had to stop in hospital for six weeks for the want of an orthopædic apparatus because the order for it had been pigeonholed all this time in the bureau of the Assistance Publique. This cost the administration four francs per day—that is to say, they had to pay 160 francs in addition to the cost of the apparatus. At the central depôt a machine for measuring cloth and costing 1500 francs had been waiting for two years for a governor, and during this time the attendants had handed out cloth in any quantity they liked. As a matter of fact, 30 per cent. of the bedding was in such a state that it would be far more preferable to destroy it than to keep it. The chief cause of this was the state of the disinfecting stoves, but the arrangements for carding and purifying mattresses also gave the most disgraceful results. The mattresses were run through old carding machines and were re-made in a hurry without the wool and the hair being thoroughly carded as they should be. For the workmen had to re-make the mattresses as fast as possible if they wished to make even two francs a day by them. Only 40 centimes were paid for mattresses. M. Ranson concluded by saying that the stock of linen which had almost run out would alone cost 3000 francs to renew. The Assistance Publique had hidden its deficits and had actually violated the law, because it gave out that a reserve of linen existed which did not exist. The institution would have to be re-constituted but money was wanting. The realisation of the promises of the new director is awaited to bring about a great reform.

Cerebro-spinal Fluid after the Injection of Cocaine.

At the meeting of the Society of Biology held on June 15th M. Ravant and M. Aubouy communicated a paper in which they pointed out that after coming to the conclusion that

headache after injection of cocaine into the spinal canal might be due to the presence of the cocaine in the cerebro-spinal fluid as well as to the increased tension they drew off some of the fluid some little time after the injection had been made. In this manner they managed to draw off some 20 cubic centimetres of cerebro-spinal fluid which spirted out with great force. As a rule the headache was very much diminished after this second tapping. With regard to the cerebro-spinal fluid drawn off it was generally found to be turbid. Chemical examination revealed the presence of cocaine, and microscopical examination showed that it contained a marked quantity of polynucleated cells which upon centrifugalisation made a clot upon the bottom of the tube. Sometimes the fluid clotted uniformly in the tube after it was left quite at rest. If the puncture was repeated during the following days it was found that at the end of three or four days the liquid, which had gradually become clearer, contained only lymphocytes and mononucleated cells and finally no formed elements of any kind. The fluid was found to be absolutely normal at a period varying from eight to 20 days after the first injection. Out of 21 patients only one was found to give perfectly clear cerebro-spinal fluid. It is obvious then from these observations that cocaine, however carefully sterilised, has a special influence upon the spinal membranes and brings about alterations in them which, although very fleeting in their effects, are in all points analogous to those observed in certain cases of meningitis although there is no trace of any microbe to be found in the cerebro-spinal fluid.

A Method of Detecting the Bacillus Typhosus.

M. Cambier explained at the meeting of the Academy of Sciences held on June 10th a method of detecting the bacillus typhosus. He placed a porous porcelain bougie in a large glass tube, both tube and bougie being half filled with bouillon sterilised at 110° C., and showed that when the bouillon contained within the bougie was inoculated with a pure typhoid culture, after some hours' subjection in a stove to a temperature of 37° C., that part of it in the glass immediately around the bougie, which had been originally quite limpid, presented manifest symptoms of the passage of the bacillus through the pores of the bougie. This property possessed by the bacillus typhosus of being able to traverse certain porous divisions suggested to M. Cambier the idea of making the following investigations in water. He infected a certain quantity of water within the bougie with the bacillus typhosus. The bougie was placed in a litre of bouillon at 38° C. As soon as a cloud appeared in the bouillon outside the bougie, with a delicate pipette he removed drops of the turbid fluid and inoculated with it different common substances—such as milk and potatoes, for example—which were afterwards submitted to microscopical examination and the agglutination reaction. Sometimes the passage of the bacillus typhosus was so complete that he found a pure culture of it within the bouillon. M. Cambier was able by this method to isolate the bacillus typhosus in the water of the Seine and of the Marne. His investigations are now being directed towards typhoid stools.

July 2nd.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Courts of Honour for the Army and Navy Medical Corps.

COURTS of honour are to be instituted for the medical officers of the army and navy. These gentlemen have hitherto not been under the jurisdiction of any court of honour, either military, naval, or civilian, the result being that in the event of a dispute arising between a medical officer of these services and another officer or a civilian medical man there was no means of deciding which party was in the right. The Imperial order which has been issued on this subject, after speaking in the highest terms of the merits of the army medical corps, says that His Majesty expects the courts of honour to maintain the general interests of all the members of the corps and to uphold the sentiments of duty and fidelity. The medical officers of the reserve, though under the jurisdiction of the courts, will not be entitled to act as judges. This course has been taken in their interest because they might otherwise be put to inconvenience in connexion with their practices. In cases where a charge has been brought against a medical officer of the reserve the matter must be adjudicated by the medical chamber previously to the verdict of the court of honour of the army medical corps. There will be two kinds of courts—one in each division for medical officers of the rank of staff surgeon and under and one in each army corps for the medical officers of higher rank. These courts are to be presided over by the chief medical officer of the division or of the army corps respectively, whilst the general commanding the division or the army corps is authorised to order the court to be convoked. The courts may either admonish the accused or may exclude him from the army medical corps in cases of grave ethical misdemeanour. The courts of honour for the navy medical corps will be composed in the same way, with the exception that in foreign ports where there might not be a sufficient number of medical officers to form a court the latter may in certain cases be composed of naval officers.

Rabies in Germany.

In Germany during the year 1900 there were 230 persons bitten by animals suffering, or suspected to be suffering, from rabies. This number showed a considerable decrease as compared with 1899 when 303 persons were bitten. Of the above 230 persons 187 were treated in the institution for infectious diseases in Berlin by injections of Pasteur's antirabic serum; the remainder were either treated at home by cauterisation or other methods or did not receive any medical treatment at all. It is remarkable that rabies did not develop in any instance either among the patients who received the injections or among the others, so that no case of rabies in the human subject occurred in Germany in 1900. The bites were inflicted by 162 dogs, five cats, and three cattle. Post-mortem examination showed the existence of rabies in 102 dogs, two cats, and three cattle, and of suspected rabies in 44 dogs and one cat.

The late Professor Langenbuch.

Professor Carl Langenbuch, chief surgeon to the Lazarus Hospital, died in Berlin on June 9th. He was born at Kiel in 1846, became qualified in Berlin in 1869, and took part as a military surgeon in the war of 1870–71. After having acted as an assistant to the late Professor Wilms he was appointed chief surgeon to the Lazarus Hospital, an office which he held till his death. His principal work was on the surgery of the liver, and as early as 1882 he performed total extirpation of the gall-bladder, and in 1888 made a partial resection of the liver. He described his views in a monograph entitled, "The Surgery of the Liver and Gall-bladder" which formed a part of the "German Surgery" edited by Professor Bruns. He was also the author of some essays on military surgery, a subject with which he was very well acquainted, as he had taken part not only in the Franco-German, but also in the Turco-Russian war. Professor Langenbuch was very much liked by the profession in Berlin and his early death is in every way greatly regretted.

July 1st.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

The Plague.

THE plague this year has taken a new departure, but the present generation has become so accustomed to hearing of cases of plague in different parts of the world that there is very little public interest in its apparition. In fact, the sceptics sway public opinion in the newspapers and in society by declaring, on the one hand, that it is not plague and that the sanitary officials are quite wrong about it all, and on the other hand, they state that the plague is of no consequence because it has evidently been lying dormant in the country since 1844 and the medical men have never discovered it until now. Anything which prevents a panic is good, so that the ignorant had better be left to their own beliefs while the intelligent can obtain daily information from the bulletins issued by Mr. Pinching, the Director-General of the Sanitary Department in Cairo. In 1899 plague spoiled the spring months of Alexandria by appearing there, but it had the courtesy not to travel away from the sea coast. The following year, in the months from May to August, it was found at Port Said, but again it showed no disposition to attack the rest of the country. On neither occasion could its first onset be traced, but it is fairly obvious that it must have come from a neighbouring country. Now for the third time it has been discovered not in Alexandria

or Port Said, which seem to be free, partly because they are both unnaturally clean and whitewashed, but in three inland towns, Zagazig and Mansourah, both in the Delta, and Minieh in Upper Egypt, several miles above Cairo. The simultaneous discovery of the disease in three scattered places shows that the microbe must have been conveyed by some moveable agent, such as clothes, carpets, or furniture. One cannot quite picture a rat wending its way or being carried by train with the family goods of an ex-plague patient, but it does not require much imagination to think of the rat-fleas being conveyed in clothes or rugs, from a dirty hovel on the sea coast to an insanitary mud cabin in the interior of the country. Anyone who knows the poorer Egyptians is aware that the last thing they would think of would be to beat, to shake, or to wash the prayer carpets and matting which they carry about with them. It is noteworthy that all the places attacked were picked out by cholera as suitable homes in the epidemics of 1883 and 1896. Now that plague has arrived in our midst we have not time to stop and to think why it never came before, but the principal object of life is to work at the various spots infected to prevent anything like a place infection, for we all know what happens to a city like Bombay where all precautions were neglected for the first few months. The plague can be fought in any country so long as there are plenty of energetic workers, some money, a docile population, and a government determined to fight. At present there are enough English workers, though there is no doubt that a permanent staff of anti-plague officials should be added for the next few years to the sanitary department. There are 10,000,000 Egyptians in Egypt, but they are of no use to fight plague unless they are controlled by a handful of Englishmen, in which case they do extremely well. The average European cannot compete with the Anglo-Saxon, whose energy, fighting-powers, tenacity, and conscientiousness about details, are all called into play by the fascination of fighting an unseen foe whose ravages are fairly conspicuous. There is no doubt that the Englishman likes policing the world and to be turned loose into an insanitary town, and to be told to compel the inhabitants and their dwellings to become clean exactly suits the Anglo-Egyptian official. Moreover, the natives obey his orders without questioning, which is more than they will do for any Egyptian or for most Europeans. Major Garner and Dr. Hayward are controlling the disease in and around Zagazig and Dr. Goodman is at Minieh, while Dr. Graham superintends the work at Mansourah and other places. The various doctors in the medical school and other departments of the Egyptian Government have been told to hold themselves in readiness for employment in the provinces. There are two satisfactory things to be recorded. The various sanitary returns show that the country is in a healthier condition than usual and also that the old plague season used always to finish in an epidemic form at the end of June. In other words the plague microbe does not like excessive heat and will not now have time to take root and to destroy before the summer heat is upon us.

Cairo, June 11th.

Medical News.

THE International Association for the Advancement of Science, Arts, and Education will hold its second international meeting at Glasgow, in the University and in the International Exhibition, from July 29th to Sept. 27th. Besides serving as a link among universities and learned societies, &c., one of the most important functions of the meeting will again be, as at Paris last year, to study and to interprets the matters of scientific, geographical, and other interests, afforded by the exhibition by means of lectures and conferences, with demonstrations and visits under skilled guidance. The various national groups which coöperated last year at Paris will again be represented at Glasgow, and their lectures and conferences, &c., will include pure and applied physics and chemistry, electricity and engineering, agriculture and forestry, geography and colonisation, hygiene, Scottish history and archæology, and fine art. Much attention is also being paid to education in its many branches—child study, nature study, methods of science study, modern language study, manual and technical education, museums, geographical education, history and organisation of secondary education, the whole concluding with a series of conferences on "Immediately Realisable Progress in Education." The general secretary is M. Liard, Permanent Secretary of State for Higher Education, Paris, assisted by Professor Patrick Geddes.

THE BRISTOL QUEEN VICTORIA MEMORIAL FUND.—Up to the present the sum of £4665 has been received towards this fund. It is hoped that £5000 will be raised towards the national memorial and £10,000 for the further endowment of the convalescent home on Durdham Down, the opening of which was one of the last public acts of the late Queen.

THE WEATHER IN NEW YORK.—It is stated that 225 deaths and 327 cases of prostration were caused by the heat in greater New York during the 24 hours ending at 2 A.M. on July 3rd. 196 deaths are reported from other cities. During the 24 hours ending at 2 A.M. on July 2nd 87 deaths occurred in greater New York from the same cause and there were 183 cases of prostration.

PRESENTATIONS TO MEDICAL PRACTITIONERS.—At the town hall, Lochmaben, Dumfriesshire, on June 8th, Mr. Thomas Reid, M.D. Glasg., who has been for 25 years in practice in Lochmaben, was presented with a gold lever watch, a gold albert chain, and a richly-chased silver bowl on ebonised plinth. Ex-Provost Halliday presided over the company, which numbered about 150, and the presentation was made by Captain Carthew-Yorstoun, convener of the county. The inscription on the watch was as follows: "Presented to Thomas Reid, Esq., M.D., by his friends on the completion of 25 years' practice in Lochmaben, as a token of appreciation and esteem. 18th May, 1901." The silver bowl, which was the gift of the ladies, bore a similar inscription.—Mr. William Atkin Thompson, M.R.C.S. Eng., L.R.C.P. Lond., resigned the post of resident medical officer to the Weston-super-Mare Hospital and Dispensary on June 10th, and before leaving the hospital he was presented with a Swan fountain pen with engraved gold bands and an aseptic, silver-plated, all-metal hypodermic syringe in case, together with a testimonial, signed by a large number of the dispensary patients, "as a mark of their esteem and good wishes for his future career and in return for his kind attention to them."—The members of the Men's Ambulance Class of the Halifax Centre of the St. John Ambulance Association have presented their lecturer, Mr. J. Crossley Wright, M.A., M.B. Cantab., with a medicine-case suitable for attachment to bicycle or motor-car. The case contained 13 phials of "tabloid" brand medicines, and sundry emergency dressings and instruments.—On June 22nd the members of the Sharpness branch of the St. John Ambulance Association presented Mr. Walter Robert Awdry, M.B. Durh., M.R.C.S. Eng., with a tennis racquet with silver shield containing a suitable inscription as a mark of appreciation for his services as honorary lecturer to the class.

THE ARMY MEDICAL SERVICE INQUIRY.—As we go to press we learn that Mr. Brodrick has announced in the House of Commons that the committee which has been recently appointed will not examine witnesses and will sit in private.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ELECTION OF MEMBERS OF COUNCIL.

THE thirteenth election of Fellows to fill the vacancies in the Council of the College under the new regulations was held in the Library of the Royal College of Surgeons of England, Lincoln's Inn Fields, on Thursday, July 4th, between 2 and 4 P.M. The result of the voting was:—

	Votes.	Plumpers.
MR. A. W. MAYO ROBSON ...	332	4
MR. W. WATSON CHEYNE ...	302	2
MR. CLEMENT LUCAS	259	60
MR. C. MANSELL MOULLIN ...	235	67
MR. J. H. MORGAN	226	32
MR. J. BLAND-SUTTON	193	25
MR. H. H. CLUTTON	145	16
MR. JORDAN LLOYD	93	4

Mr. Mayo Robson and Mr. Watson Cheyne are therefore re-elected and Mr. Clement Lucas is elected.

768 Fellows voted, 18 personally and 750 by post; 5 proxies were received too late.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The New Factory and Workshop Legislation.

THE Bill of the Government to amend the Factory and Workshop Acts has not, so far, been very much altered by the Grand Committee on Trade. In the first clause, which deals with the power of the Home Secretary to make regulations for the safety of persons employed in dangerous trades, words have been inserted which extend slightly the possible operation of these regulations. A good deal of time was spent over the clauses dealing with outwork and outworkers. As the Bill stands, the employer is required to prepare a list of outworkers and to furnish copies of it to the Home Office inspector for the district and to the district council, and Mr. Ritchie has promised to bring up at a later stage of the Bill a clause providing that where a district council neglects its duties in connexion with outwork and outworkers the Home Office inspector may step in and see to them. In the clause prohibiting outwork in places where there is infectious disease words were inserted to confine the operation of the clause to the infectious diseases "required to be notified under the law for the time being in force in relation to the notification of infectious diseases." On the clause prohibiting outwork in places injurious to health there was a long debate as to whether the administration of the clause should rest with the district council or the Home Office inspector, and Mr. Ritchie offered by way of compromise a provision to the effect that when default on the part of the district council was suspected there should be power to send a Home Office inspector to inquire. The prevailing sense of the Committee seemed to be that the local authorities would not fail in their duty in this connexion and that they might be trusted.

Isolation Hospitals Bill.

This Bill has now passed both Houses of Parliament and awaits the Royal assent. The measure is designed to encourage the establishment of isolation hospitals and to improve their character. It gives power to local authorities under the Public Health Act of 1875 who have provided isolation hospitals to transfer them to the county council and it enables the county council to make an annual contribution towards the maintenance or extension of isolation hospitals remaining in the hands of local authorities under the Public Health Act of 1875. It also provides for borrowing money and for county councils being represented on hospital committees.

HOUSE OF COMMONS.

THURSDAY, JUNE 27TH.

Roentgen Rays in the War.

SIR BENJAMIN STONE asked the Secretary of State for War whether the Army Medical Department had made any report as to the application and value of the use of Roentgen rays in the military hospitals in South Africa during the war; whether expert instruction had been given in the several hospitals in applying x rays; and whether illustrated records had been obtained for future guidance.—Mr. BRODRICK replied: No report has been made on the use of Roentgen rays in the war nor will it be made until the war is over. Instruction is given in certain hospitals at home in the method of applying the x rays, but could not be readily given in South Africa. Illustrated records have been obtained and a large number have been forwarded to the Army Medical School.

Medical Officers of Health in Scotland.

The LORD ADVOCATE, in reply to question by Mr. WEIR, said that he was informed by the Local Government Board in Scotland that since May 15th, 1894, 72 burgh local authorities had appointed medical officers of health. Except in the case of two of these burghs all the medical officers of health appointed held a public health diploma.

The Reorganisation of the Army Medical Service.

Mr. BURDETT-COUTTS asked the Secretary of State for War if he could now state what progress he had made with his scheme of reform of the Army Medical Service; when he proposed to bring it forward and what opportunity would be afforded the House of discussing it; and if he could give any information as to the composition of the committee which he proposed to appoint to advise in the matter.—Mr. BRODRICK said: In reply to this and similar questions I beg to say that I have received a number of suggestions and representations from various quarters and that a committee of experts to consider a scheme which I have drawn up for the future organisation of the army medical service will be shortly appointed. The committee will consist of the following members: Mr. Howard H. Tooth, C.M.G., M.D. Cantab., F.R.C.P. Lond., St. Bartholomew's Hospital; Mr. George H. Makins, C.B., F.R.C.S. Eng., St. Thomas's Hospital; Mr. Alfred D. Fripp, C.B., F.R.C.S. Eng., Guy's Hospital; Sir F. Treves, K.C.V.O., C.B., F.R.C.S. Eng., London Hospital; Mr. Alexander Ogston, M.D. Aberd., Scotland; Lieutenant-Colonel A. H. Keogh, R.A.M.C., C.B., M.D. R.U.I., Ireland; Mr. E. C. Perry, M.D. Cantab., F.R.C.P. Lond., Senate of London University; Surgeon-General W. R. Hooper, I.M.S., C.S.I., President of the Medical Board, India Office; and two officers who will be named by the Commander-in-Chief to represent the army. The secretary will be Major H. E. R. James, R.A.M.C., F.R.C.S. Eng., and I propose to take the chair of the committee myself.

Dr. FARQUHARSON asked whether the committee would close its sittings before the end of the present session?—Mr. BRODRICK replied: I do not know. It is much more important that they should come to a correct conclusion than that we should hurry them in the performance of the task assigned to them.

Dr. FARQUHARSON asked whether the right hon. gentleman was aware of the great difficulty of getting candidates for the Royal Army Medical Corps, a difficulty which would amount to impossibility before long if the intentions of the Government were not made known.—Mr. BRODRICK replied: The difficulty may become accentuated, but I would rather make a temporary arrangement and put the corps permanently on a good footing than be in a hurry to arrive at a conclusion.

Dr. THOMPSON asked the right hon. gentleman whether he would not add to the committee a representative of the medical profession in Ireland.—Mr. BRODRICK: No, sir; I think it would be very undesirable to make the committee too large and I am sure that all questions connected with Ireland will be most carefully considered, there being already one representative of Ireland on the committee.

In reply to another question by Dr. THOMPSON Mr. BRODRICK said: The object of the committee is to consider a scheme for making it possible to get proper medical officers in the future and a properly organised corps, and there is no idea of taking evidence as to the grievances of members of the Royal Army Medical Corps themselves.

FRIDAY, JUNE 28TH.

The Case of Dr. Long.

When the House was in Committee of Supply on the vote for the salary of the Chief Secretary for Ireland Colonel SAUNDERSON raised the case of Dr. Long, about which there had been several questions asked. Colonel Saunderson explained that Dr. Long was a skilled medical practitioner who in 1896 went to Limerick as the agent of the Irish Church Missions, an organisation one of whose objects was the conversion of Roman Catholics to the Protestant faith. In his work as a proselytiser Dr. Long was pursuing a perfectly legal object. A large number of the poorest class of the people of Limerick attended at Dr. Long's house and received medical ministrations from him gratis, and while they were there he spoke to them on the subject of religion; but he made no bargain with them—whether they liked his religious opinions or not they got his services as a medical man. When Dr. Long's action became known to them certain of the priests undertook to make things hot for Dr. Long. One of them went to his surgery and hunted the patients out of the place and told them never to return. After that Dr. Long was publicly assaulted in the streets and assailed with stones, eggs, and cabbages, which was the natural result in Ireland where a man was held up to execration by the priests. He claimed from the Chief Secretary for Ireland that more police protection should be given to Dr. Long.—Mr. WYNDHAM, replying to this and other speeches on the subject, said that Dr. Long would be protected by the law in the course he was pursuing, but he could not help saying that he considered that course a most unfortunate one; it was a course which might be followed with considerable advantage in China or Peru, and even in this country, but it could not be pursued with any great public benefit in Ireland. Dr. Long went to the Roman Catholic town of Limerick as the emissary of a missionary society and opened a dispensary there. It was very wrong, of course, that that action should have led to disturbances. It was the duty of the police to protect Dr. Long and he would be protected. But he ventured to say that disturbances would occur under similar circumstances in any part of the world, and certainly in Belfast, if any of the regular orders of the priesthood were to open a mission on the same lines to the Protestants. The duty of the Government was to protect such persons, acting as they did legally, from molestation, and that duty would be performed, but he should express his opinion that such a state of affairs was most regrettable and his hope that all persons would use their best endeavours to allay any irritation that might have been aroused.

MONDAY, JULY 1ST.

A Standard for Butter.

Mr. HANBURY, President of the Board of Agriculture, announced that the committee on this subject will consist of Mr. Horace Plunkett, chairman; Professor Thorpe, principal chemist of the Government laboratories; Sir Charles Cameron, medical officer of health and public analyst of Dublin; Professor Thompson, president of the Institute of Chemistry; Major Craigie, of the Board of Agriculture; Mr. George Gibbons, a well-known agriculturist in the West of England; Mr. Kearley, M.P.; Mr. Christopher Dunne, chairman of the Cork Butter Market Trustees; and Mr. Anderson, secretary of the Irish Agricultural Society. Mr. Hanbury added that he also hoped to obtain the services of Mr. John Gilchrist, a well-known butter-maker.

TUESDAY, JULY 2ND.

Contamination of Drinking-places for Animals

Mr. LOUIS SINCLAIR introduced a Bill to prevent the contamination of public drinking-places for animals.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning at each week, for publication in the next number.*

BONNEY, W. F. VICTOR, M.D., M.S. Lond., F.R.C.S. Eng., M.R.C.P. Lond., has been appointed Registrar to the Chelsea Hospital for Women.

BREW, RICHARD HUGH, L.R.C.P. Edin., has been appointed Medical Officer of Health of the Clutton Rural District, vice G. H. Whichelo, resigned.

CAMPBELL, ALFRED, M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Vaccinator at Young, New South Wales.

EVERED, ARTHUR C., L.R.C.P., L.R.C.S. Edin., L.F.P. & S. Glasg., has been appointed Special Medical Officer for Plague at Albany, Western Australia.

FETHERSTONHAUGH, CHARLES, M.B., Ch.M. Dub., L.R.C.S. Irel., has been appointed Vaccinator at Corryong, Victoria.

FITZGERALD, JAMES, M.B., Ch.M. Edin., has been appointed Vaccinator at Kalangala, New Zealand.

GODFREY, PATRICK J., L.R.C.P., L.R.C.S. Edin., has been appointed Health Officer at Port Strahan; also Medical Officer at Port Macquarie, Tasmania.

GORDON-SMITH, H., M.A., B.C. Cantab., has been appointed Resident Medical Officer to the West London Hospital.

GULLAN, A. GORDON, M.D. Lond., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Physician to the Stanley Hospital, Liverpool.

HEATHER, LEWIS DANIEL, L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Medical Officer of Health for the Hay (Brecknockshire) Urban and Rural District Councils, vice G. W. Beaumont Featherstone, resigned.

HINCKS, THOMAS, M.B., C.M. Edin., has been appointed Medical Officer of Health by the Painscastle (Brecknockshire) Rural District Council.

HOUSE, FREDERICK M., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Medical Officer, Botanist, and Naturalist in the Kimberley Expedition, Western Australia.

INGOLDBY, FREDERICK J., M.R.C.S. Eng., L.R.C.P. Edin., has been appointed Quarantine Officer at Albany, Western Australia.

JONES, OWEN CLAYTON, M.B. Oxon., L.R.C.P. Lond., M.R.C.S. Eng., L.S.A., has been appointed Medical Officer for the Ilfracombe District by the Barnstaple Board of Guardians.

LITTLEJOHN, THOMAS H., M.B., C.M. Edin., F.R.C.S. Edin., D.P.H., has been appointed Medical Officer of Health for Hampstead.

LETHBRIDGE, ROBERT W., M.B., Ch.M. Edin., has been appointed Medical Superintendent of the Sunbury Lunatic Asylum, Victoria.

MARSH, JOHN HEDLEY, M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Honorary Surgeon to the Macclesfield General Infirmary.

MCCALL, EVA, M.B., Ch. B. Glasg., has been appointed Assistant Resident Medical Officer at the Birkenhead Union Infirmary.

MCKENZIE, J., M.A., M.B., Ch.B. Aberd., has been appointed House Surgeon to the West London Hospital.

MOORE, S. G., M.B., Ch.B. Vict., D.P.H. Lond., Fellow San. Inst., has been appointed Medical Officer of Health to the County Borough of Huddersfield.

PENDLEBURY, HERBERT S., F.R.C.S. Eng., has been appointed Surgeon to the Royal Hospital for Women and Children, Waterloo Bridge-road.

SCOTT, D. WOLSELEY, L.R.C.P., L.R.C.S. Edin., L.F.P & S., Glasg., has been appointed Medical Officer to the Hendre Morgarn, Heulits Vale, and other Collieries.

SHEILD, A. MARMADUKE, F.R.C.S. Eng., has been appointed Consulting Surgeon to the Royal Hospital for Women and Children, Waterloo Bridge-road.

UNDERHILL, A. S., M.D. T.C.D., has been appointed Medical Officer of the West Bromwich Workhouse.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BOROUGH ASYLUM, Portsmouth.—Junior Assistant Medical Officer. Salary £130 per annum, increasing to £150, with board, lodging, and washing.

BRISTOL ROYAL INFIRMARY.—Anæsthetist and Junior House Surgeon. Also Casualty Officer. Salary at rate of £50 per annum, with board, lodging, and washing.

CHESTER GENERAL INFIRMARY.—House Physician. Salary £90 per annum, with residence and maintenance. Also House Surgeon. Salary £100 per annum, with residence and maintenance.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria-park, E.—Second House Physician for six months. Salary at rate of £30 per annum, with board, residence, and washing.

CLAYTON HOSPITAL AND WAKEFIELD GENERAL DISPENSARY.—Junior House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing.

CROYDON UNION INFIRMARY, Mayday-road, Croydon.—Resident Assistant Medical Superintendent and Dispenser. Salary £120 per annum, increasing to £150, with furnished apartments, rations, and washing.

CUMBERLAND AND WESTMORLAND ASYLUM, Garlands, Carlisle.—Senior Assistant Medical Officer, unmarried. Salary £150 a year, rising to £180, with board, lodging, &c.

DAVID LEWIS NORTHERN HOSPITAL, Liverpool.—Assistant House Surgeon. Salary £70 per annum, with residence and maintenance.

DEVON COUNTY ASYLUM, Exminster, near Exeter.—Third Assistant Medical Officer. Salary £125, rising to £150, with board, lodging, &c.

DEVONSHIRE HOSPITAL, Buxton, Derbyshire.—Assistant House Surgeon. Salary £50 per annum, with furnished apartments, board, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—House Surgeon. Salary £50 per annum, with board and washing. Also Assistant House Surgeon. Salary £25 per annum, with board and washing.

FISHERTON ASYLUM.—Assistant Medical Officer. Salary £150 per annum, with board, lodging, and washing.

GERMAN HOSPITAL, Dalston.—Honorary Assistant Physician and Honorary Assistant Surgeon.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—House Physician and Junior House Physician, both for six months. Salary of the former at the rate of £80, of the latter at the rate of £30 per annum, with board, lodging, and washing. Also Non-Resident Assistant House Surgeon for six months. Salary at the rate of £30 per annum, and luncheon and dinner.

GREENOCK INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

GUEST HOSPITAL, Dudley.—Assistant House Surgeon for six months. Salary £40 per annum, with residence, board, and washing.

HEXHAM RURAL DISTRICT COUNCIL.—Medical Officer of Health. Salary at rate of 200 guineas per annum.

HULL ROYAL INFIRMARY.—Junior Assistant House Surgeon. Salary £60, with board and lodging.

KENT AND CANTERBURY HOSPITAL.—Assistant House Surgeon, unmarried. Salary £80 a year, with board and lodging.

KING'S COLLEGE, London.—Professor of General Pathology and Bacteriology. Also Assistant Physician (or Surgeon) for Diseases of the Throat.

LAWN HOSPITAL FOR INSANE, Lincoln.—Assistant Medical Officer. Salary £100.

LONDON COUNTY ASYLUM, Claybury, Woodford-bridge, Essex.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, furnished apartments, and washing.

LIVERPOOL STANLEY HOSPITAL.—Honorary Assistant Physician.

LIVERPOOL PORT SANITARY AUTHORITY.—Assistant Medical Officer of Health. Salary £300 per annum.

MANCHESTER ROYAL EYE HOSPITAL.—Junior House Surgeon. Salary £80, with residence, board, and washing.

NEWCASTLE-UPON-TYNE CITY LUNATIC ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £140 a year, rising to £160.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Honorary Surgeon for Ophthalmic Department.

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney-road, N.E.—House Physician for six months. Salary at rate of £30 per annum, with board, residence, and laundry. Also Dental Surgeon. Salary £100 per annum.

NORTHAMPTON GENERAL INFIRMARY.—Honorary Physician.

NOTTINGHAM GENERAL DISPENSARY.—Senior Resident Surgeon. Salary £200 per annum, increasing by £15 every year. Also two Assistant Resident Surgeons. Salaries £160 per annum each, increasing by £10 every year, furnished apartments, attendance, light, and fuel. Unmarried.

OLDHAM INFIRMARY.—Senior House Surgeon. Salary £100 per annum, with board, washing, and residence; also Junior, £75 per annum, with board, residence, and washing.

OWENS COLLEGE, Manchester.—Senior and Junior Demonstrator in Physiology. Stipends £150, rising to £300, and £100, rising to £150 respectively.

PARISH OF GLENELG.—Medical Officer. Salary £120 per annum.

PLYMOUTH BOROUGH ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, rising to £200 per annum, with furnished apartments and board and washing.

QUEEN'S HOSPITAL, Birmingham.—House Surgeon. Salary at rate of £50 per annum, with board, lodging, and washing.

ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £100, increasing by £10 a year, with board (excluding stimulants) and apartments.

ROYAL HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Bridge-road, S.E.—Assistant Surgeon.

ROYAL ORTHOPÆDIC HOSPITAL 297, Oxford-street, and 15, Hanover-square, W.—Resident House Surgeon and Registrar. Salary £100 per annum, with board.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with rooms, board, and washing.

ROYAL SURREY COUNTY HOSPITAL, Guildford.—Assistant House Surgeon. Salary £75, with board, residence, and laundry.

ST. BARTHOLOMEW'S HOSPITAL, Rochester.—Assistant House Surgeon. Salary £100 per annum, with board, washing, &c.

ST. LEONARD, SHOREDITCH, INFIRMARY, Hoxton-street, N.—Second Assistant Medical Officer. Salary £100 per annum, with rations, washing, and furnished apartments.

ST. MATTHEW, BETHNAL-GREEN INFIRMARY, Cambridge-road, N.E.—First Assistant Medical Officer, single. Salary £150 per annum, with board, lodging, and laundry.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Assistant House Surgeon for six months. Salary at the rate of £60 per annum, with board, lodging, and washing.

VICTORIA HOSPITAL FOR CHILDREN, Queen's-road, Chelsea, S.W.—Surgeon and Assistant Surgeon.

WESTERN GENERAL DISPENSARY, Marylebone-road.—Second House Surgeon, unmarried. Salary £80 per annum, with board, residence, and laundry.

WEST RIDING ASYLUM, Wadsley, near Sheffield.—Third Assistant Medical Officer. Salary £150, with board, &c., rising to £200. Also Fifth Assistant Medical Officer. Salary £140 per annum, with board, &c., rising to £160.

WILLESDEN URBAN DISTRICT COUNCIL ISOLATION HOSPITAL.—Medical Superintendent and Assistant Medical Officer of Health. Salary £350 per annum with allowance of £50 per annum for residence.

Births, Marriages, and Deaths.

BIRTHS.

CROKER-FOX.—On June 23rd, at Woodbine, Anglesey, Gosport, the wife of Surgeon H. E. Croker-Fox, R.N., of a daughter.

GILES.—On June 22nd, at St. Nicholas-parade, Scarborough, the wife of Leonard Giles, M.B., F.R.C.S., of a son.

HILLS.—On June 24th, at New Bridge House, Upwell, the wife of W. C. D. Hills, M.R.C.S. Eng., L.R.C.P. Lond., of a daughter.

MARRIAGES.

BIDDLE—SYMONDS.—On June 27th, at the English Church, Paris, by the Rev. H. E. Noyes, D.D., Hon. Chaplain to His Majesty's Embassy, Paris, Henry G. Biddle, M.R.C.S., L.R.C.P., of Broadstairs, to Beatrice Frances Symonds, daughter of J. G. Symonds.

DYBALL—KNIGHT.—On June 27th, at St. Mark's Church, North Audley-street, by the Rev. C. C. Collins, Brennan Dyball, M.B., B.S., F.R.C.S., to Evelyn Maud, daughter of Sir Henry E. Knight.

EVANS—GRANGER.—On 20th June, at St. Stephen's Church, Battersea, by the Rev. C. Walter Russell, B.D., Vicar, John William Evans, LL.B., D.Sc., late State Geologist and Chief Inspector of Mines in Mysore, son of the late Evan Evans, M.D., R.N., of the City of London, to Jessie Downie Granger, M.B., Ch.B., Glasgow, daughter of the late Dr. J. R. Granger of Glasgow, and of Mrs. Granger of 2, Grosvenor-terrace, Glasgow.

WATSON—RANKIN.—On June 27th, at S. Andrew's, Rochford, by the Rev. H. A. Watson, George Trustram Watson, M.A., M.B., B.C. Cantab., F.R.C.S. Eng., to Dorothy Nora, daughter of Hugh Rankin.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

FEES AT CORONERS' INQUESTS.

To the Editors of THE LANCET.

SIRS,—Can you tell me to what fee a medical witness is entitled for giving evidence at a coroner's inquest (1) if he has made a post-mortem examination of the body, and (2) if no such examination has been made. In London one usually receives two guineas in the first case and one guinea in the second. The coroner here orders one guinea in the first case and nothing in the second, and he refers me to Section 22 of the Coroners Act, 1887. I should be glad if you would enlighten me as to whether the London or local coroner is in the right.

I am, Sirs, yours faithfully,

July 2nd, 1901. G. H. F.

*** There is no question about the fees as regards inquests on persons not dying in a public institution. If a practitioner gives evidence by a coroner's orders without making a post-mortem examination he is entitled to a fee of one guinea. If he gives evidence and in addition makes a post-mortem examination *as ordered by the coroner* he gets a fee of two guineas. But by Section 22, subsections 1 and 2, of the Coroners Act of 1887 a medical witness (1) gets no fee for making a post-mortem examination which is not ordered by the coroner, and (2) when an inquest is held on the body of any person who has died in a public institution, even if supported by endowment or voluntary subscriptions, the medical officer of such institution shall not be entitled to such fee or remuneration. If our correspondent refers to inquests on the bodies of persons dying in the hospital the coroner, even if he have ordered a post-mortem examination, is within the Act in allowing no fee at all; but apparently the coroner whom our correspondent mentions allows one guinea for the post-mortem examination on a person dying in the hospital.—ED. L.

WHAT IS CARBONATE OF SODA?

IT is a pity that some understanding cannot be arrived at as to what is really indicated by the popular names of many drugs in common use. Until such an understanding is laid down it seems to us that in many instances proceedings taken under the Food and Drugs Act will prove silly, abortive, and vexatious. Last week, for example, a druggist was charged with selling bicarbonate of soda when carbonate of soda was asked for. The indictment was that this substitution was to the prejudice of the purchaser. It was a stupid ground for a prosecution, although strictly speaking the article asked for was as a matter of fact not supplied. But pure anhydrous carbonate of soda is seldom, if ever, supplied to the public and the public never expect it, although they invariably ask for carbonate of soda. Indeed, true carbonate of soda is an alkali possessing corrosive action and might prove harmful, while it could never serve the great number of purposes to which the bicarbonate is very commonly applied. Of course, the bicarbonate of soda is one of the carbonates of soda, for there are several. It just happens to be that bicarbonate of soda is in very common request, but the public do not know the difference between it and the carbonate. Did they know and understand the difference this prosecution might have been reasonable, as it certainly would have been if sulphate of soda had been asked for and the bisulphate had been supplied.

INCOME-TAX OVERCHARGES.

To the Editors of THE LANCET.

SIRS,—The Chancellor of the Exchequer, in his recent speech at the Mansion House, stated that the cost of the wars in which this country has been engaged in South Africa, China, and in East and West Africa, has, notwithstanding the fact of the heavy increase in the income-tax, and the tax on coal and sugar, rendered it necessary to raise a loan of £127,000,000 within the last two years. When it is remembered that the war expenditure is still going on with no immediate prospect of ceasing in the near future the income-tax payer cannot expect early relief in the rate now in force, and, though the Chancellor of the Exchequer was, doubtless, very much in earnest when he said he would resist the temptation, if possible, to ask for another 2*d.* next year, it is to be feared that the rate will not then be less than 1*s.* 4*d.* It is, therefore, the more necessary to bear in mind that it is possible in very many cases to obtain relief from excessive assessments, and also by way of abatements that have not already been allowed. In the matter of overcharges under Schedule D, those who paid too much for the year 1900–1901 should at once appeal against the assessment for that year, or they may be told that they are too late. Thousands of people who pay taxes for which they are not liable can now claim repayment for three years; the amount recoverable might in the case of many amount to upwards of £45. We shall be pleased to advise your readers gratuitously whether they are entitled to any repayment in respect of tax deducted from rents, interests, dividend, annuities, &c., whether paid "free of income-tax" or not, and also in respect of life assurance premiums, on their sending us full particulars of their incomes from all sources and a stamped directed envelope for reply. We are, Sirs, yours faithfully,

THE INCOME-TAX ADJUSTMENT AGENCY, LIMITED.

Poultry, London, E.C., July 3rd, 1901.

A POINT IN ETIQUETTE.

To the Editors of THE LANCET.

SIRS,—Kindly give me your advice through THE LANCET on the following point of etiquette. I was engaged for a confinement some few week ago. The confinement came off recently and being engaged at another case I could not go; messenger said I should be wanted in about three-quarters of an hour, and left on the understanding that I would get down as soon as possible. On my subsequent arrival about a quarter of an hour after appointed time I found they had called in another medical man and delivery had just been completed—case said to be urgent and forceps delivery. I saw the patient and expressed my sorrow at not being able to attend and left the room and awaited the other medical man downstairs in order to see about the subsequent attendance; and this is the point on which I require your advice. When I have been called in on an emergency I have always turned the case over to the medical man who had been engaged—the patient being his—and come to some agreement or other as to fee with him. In this case, however, he told me that he did not know I had been engaged until I entered the bedroom, and said he had been asking the patient whether he should continue or not. I certainly think this is wrong, as it practically leaves me without a voice in the matter, and had I thought that he was going to act in such a manner I should have asked the patient myself, as of course I have the prior right. As it is I simply left the house and decline to have anything further to do with it. Of course, in good-class patients such a thing would not have happened, but in the above—a decent working-man class—the suggestions advanced by the accoucheur are often acted upon and the former medical man loses the family as well eventually.

I am, Sirs yours faithfully,

July 2nd, 1901. LEX.

*** The time-honoured rule is that when a practitioner is called to an urgent case he should, when the emergency is provided for, resign the case to the medical adviser in ordinary. It is very usual for the gentleman called in at the beginning to continue in attendance until the end by arrangement with the patient and the family practitioners, but it is not correct that the suggestion of so continuing should come from him.—ED. L.

MEDICAL TESTIMONIALS.

A CORRESPONDENT has forwarded us a circular most of which we reproduce below. We have suppressed all names and addresses.

"To Medical Men and Others.

"We have the permission of Dr. —— to publish the following letter:—

"THE —— CYCLE CO., LTD., "——, ——, 29th April, 1901.

"DEAR SIRS,—I have recently been riding one of your —— cycles with free wheel and hand brake and you may be interested to hear that I consider it the best bicycle I have ever ridden. I began cycling on "bone-shakers," then used a "phantom," and then the "ordinary," and have since ridden safeties of all makes and patterns, having at present three "——" in the house, I am thus a fair judge of a machine and I wish to say that I consider —— —— gear to possess all the advantages claimed for it. Its most conspicuous feature is the absence of strain on the frame when the rider uses force, as in climbing hills and travelling against the wind. The ease with which the machine moves under these circumstances was a revelation to me. You also use a good free wheel, which is really free, and your two point hand brake is without doubt the best in the market.

"I have never before written anything of the nature of a testimonial, and I now write you simply to express the admiration which your cycles demand. In my professional work I am constantly asked by ladies if they may cycle, and I often have to say to my more delicate patients that they must not go too fast nor too far, and must avoid riding up hills and against strong winds. I shall now be able to tell them that by riding a —— with free wheel and hand brake they will be able to keep pace with much stronger riders without fear of fatigue or over strain.

"I am, Sirs, yours faithfully,

"——, ——, M.A., B.Sc., M.D."

In our issue of June 29th, p. 1876, we published a letter from Dr. P. F. Mannix and Dr. B. W. Hogarth in which they expressed their opinion that "if a man supplies us with good bicycles or motor-cars we see no objection to testifying to it, even though we do belong to the medical profession." Neither do we see any objection provided that the testimonial is given as from an ordinary citizen. But we consider that for a medical man's name, qualifications, and appointments, together with his full address, to be distributed broadcast to all and sundry is not becoming—even though the bicycle in question is a good one.

ASBESTOS SLATE.

WE have received from the manager of the Calmon Asbestos and Rubber Works, 3, Haydon-street, Minories, samples of asbestos slate identical with the material supplied for the construction of the asbestos house used by Field-Marshal Count Waldersee in China. The specimens are not only fireproof but waterproof also and the material affords some protection against the ingress of dust and insect pests. It is very strong and durable and cleanly. The asbestos house has been adopted by military authorities because, for one thing, it is easily moveable; moreover, asbestos affords

protection against climatic influences, being an efficient insulator against both heat and cold. The asbestos slates are made in metre squares either one-eighth of an inch or a quarter of an inch thick, according to requirements.

THE TREATMENT OF ACNE.

To the Editors of THE LANCET.

SIRS,—I should be pleased to have the experience of any of your many readers who have treated with success cases of acne vulgaris. I am a medical man of many years' standing, aged 47 years, and suffer very severely from attacks of acne; it is covering my face with scars from the oft-repeated attacks, and I have tried all the ordinary remedies, including taking a long holiday and rest, and still they appear in crops on the face, especially the forehead. Any help to a fruitful result will be gladly welcomed.

I am, Sirs, your faithfully,

June 27th, 1901. ACNE.

HOMES FOR INEBRIATES.

To the Editors of THE LANCET.

SIRS,—Can anyone give me the names or addresses of homes for inebriates where after a voluntary entry by the patient he can be detained for a definite period agreed to by the patient and to which, if he leaves, he can be brought back?

I am, Sirs, yours faithfully,

July 3rd, 1901. PHEMAD.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 4th, 1901.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radia. in Vacuo.	Maximum Temp. in Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
June 28	30·15	E.	...	120	75	55	59	64	Cloudy
,, 29	30·11	ENE	...	122	76	59	59	68	Fine
,, 30	30·07	S.E.	0·19	112	72	57	58	60	Cloudy
July 1	29·70	S.W.	0·93	105	73	60	60	62	Overcast
,, 2	29·59	E.	0·01	104	71	58	62	67	Cloudy
,, 3	29·69	E.	0·15	125	75	58	59	64	Cloudy
,, 4	30·02	E.	...	114	75	59	59	62	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (9th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

WEDNESDAY (10th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.).

THURSDAY (11th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

FRIDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

SATURDAY (13th).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.), Throat, Golden-square (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

TUESDAY (9th).—SOCIETY FOR THE STUDY OF INEBRIETY (11, Chandos-street, Cavendish-square, W.).—4 P.M. Paper:—Dr. T. N. Kelynack and Mr. W. Kirkby: Arsenical Poisoning from Beer Drinking in its Relation to the Study of Inebriety.

WEDNESDAY (10th).—DERMATOLOGICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—5.15 P.M. Consultation on Cases of Clinical Interest.

THURSDAY (11th).—BRITISH GYNÆCOLOGICAL SOCIETY (20, Hanover-square, W.).—8 P.M. Dr. H. P. Noble (Philadelphia): The Degenerations and Complications of Uterine Fibromyomata.

FRIDAY (12th).—BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION (11, Chandos-street, Cavendish-square, W.).—Special discussion on Tumours of the Pharynx to be opened by Dr. Robert Woods (Dublin). Cases and Specimens will be shown by the President, Mr. Mayo Collier, Dr. B. Baron, Mr. Lennox Browne, Dr. D. Grant, &c.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (8th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Galloway: Consultation. (Skin.)

TUESDAY (9th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. W. Ewart: Consultation. (Medical.)

WEDNESDAY (10th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Cantlie: Consultation. (Surgical.)

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Dr. Acland: Cases illustrating Various Types of Pleurisy.

THURSDAY (11th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Consultation. (Surgical.)

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Dr. Still: Abdominal Tuberculosis.

CHARING-CROSS HOSPITAL.—4 P.M. Dr. Willcocks: Medical Cases. (Post-Graduate Course.)

FRIDAY (12th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. W. Dodd: Consultation. (Eye.)

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports, should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1901, which was completed with the issue of June 29th, and the Title-page to the Volume, are given in this number of THE LANCET.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1901 will be ready shortly. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half-year's numbers are now ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

During the week marked copies of the following newspapers have been received:—*Bristol Mercury, Liverpool Daily Post, Yorkshire Post, Leeds Mercury, Woolwich Herald, Reading Mercury, Windsor and Eton Express, Mining Journal, South African News, Dover Express, Hertfordshire Mercury, Yarmouth Advertiser, Surrey Advertiser, Weekly Free Press (Aberdeen), &c.*

Communications, Letters, &c., have been received from—

A.—Dr. J. M. Atkinson, Pudlington; Dr. J. C. Abbott, Birmingham; Association for Oral Instruction of Deaf and Dumb, Secretary of.

B.—Dr. L. C. Bruce, Murthly; Bromsgrove, Medical Officer of Health of; Mr. P. Benham, Lond.; Dr. C. Basan, Lond.; Mr. C. Birchall, Liverpool; Messrs. Bedford and Co., Lond.; T. B. Browne, Ltd., Lond.; Bristol Royal Infirmary, Secretary of; Birmingham University, Dean of Faculty of Medicine of; Mr. J. B. Bate, Isleworth; Mr. S. W. Belderson, Lond.; Messrs. C. Barker and Sons, Lond.; Dr. J. J. Buchan, Hamilton; Mr. E. Stanmore Bishop, Manchester; Mr. A. Burr, East Grinstead.

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F.—Dr. E. M. Fuller, Bath, Maine, U.S.A.; Rev. R. Free, Lond.; Fisherton House Asylum, Salisbury, Medical Superintendent of; Messrs. Fairchild Bros., and Foster, Lond.; Major F. Fernandez, Folkestone.

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I.—International Association for the Advancement of Science, Secretary of; Income Tax Repayment Agency.

J.—Dr. G. Jephson-Widdowson, York; St. John and St. Elizabeth Hospital, Secretary of; J. L.

K.—Mr. A. Kellerman, Lond.; Dr. C. F. Knight, Portobello; Dr. M. A. Key, Southsea; Kent and Canterbury Hospital, Canterbury, Secretary of; Messrs. R. A. Knight and Co., Lond.

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Letters, each with enclosure, are also acknowledged from—

A.—Miss E. E. Adams, Lond.; Messrs. Armour and Co., Lond.; Messrs. Allen and Hanburys, Lond., A. E. L.; A. D.; A. V. P.

B.—Mr J. T. Brickwell, Dunster; Burton-on-Trent Infirmary, Hon. Secretary of; Mrs. Boone, New Malden; Mr. H. Browne, Lond.; Mr. P. S. Bridgeford, Lond.; Mr. T. H. Brocklehurst, Stourbridge; Messrs. Brady and Martin, Newcastle-on-Tyne; Dr. W. H. Bishop, Wylam-on-Tyne; Mr. J. B. Bate, Lond.; Messrs. F. B. Benger and Co., Manchester.

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R.—R. M.

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T.—Dr. I. A. Tate, Portadown; T. W.; Mr. J. Thin, Edinburgh; T. A. L.; Tower House Retreat, Westgate-on-Sea.

W.—Mrs. L. Williams, Leicester; Dr. R. L. Woollcombe, Dublin; Mr. H. V. Williams, North Shields; Mr. J. Ward, Lond.; Mr. C. A. Wickham, Willisborough; W. D.; W. Y.; W. B.; Mr. W. Walker, Greenock; Dr. H. W. Wise, Poynton; W. C. R.; Messrs. H. Wilson and Son, Warneford Hospital, Leamington, Secretary of; W. C., Norwich; Mr. N. Walmisley, Lond.

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Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies only should be forwarded.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIER, 8, Rue Traversière, Asnières, Paris.